LIBRARY
MAR 26 1894

THE SCHOOL JOURNAL

·NEW·YORK·AND·CHICAGO·

VOLUME XLVIII., No. 11. $2.50 A YEAR; 6 CENTS A COPY. | MARCH 17, 1894. | 61 East Ninth St., New York, 262 Wabash Ave., Chicago, Ill.

ALWAYS Up To Date

The large number of School Geographies that we publish and the great demand for them enable us to maintain a corps of competent persons who note the latest discoveries, the continually shifting political boundaries, changes in population, etc., and the data thus secured are promptly incorporated in our text-books of geography. This is done at an expense that would not be warranted if we published only one series to geographies.

Each edition is thus carefully corrected, and editions follow each other with such frequency that the stock on hand is always fresh and of recent issue.

American Standards

Appletons'		The Eclectic		Barnes's	
Elementary,	$0.55	Elementary,	$0.55	Elementary,	$0.55
Higher,	1.25	Complete,	1.20	Complete,	1.25
Swinton's		**Harper's**		**Niles's**	
Introductory,	$0.55	Introductory,	$0.48	Elementary,	$0.44
Grammar School,	1.25	School,	1.08	Advanced,	1.00

So accurate and reliable are the maps of the American Book Company's Geographies, that the United States Government adopted and used them as the basis of its data in taking the 1890 census. Accuracy and reliability, true pedagogic methods, artistic and mechanical excellence; these are characteristics which distinguish the American Book Company's Geographies from all others.

For High School Classes

Appletons' ($1.60); Guyot's ($1.60); Monteith's ($1.00); and The Eclectic Physical Geographies. The Eclectic (12mo size, $1.00) is designed for more advanced classes, and is admirably adapted to the work of preparatory schools.

Books sent prepaid on receipt of prices. Geography Section of our List describes these. It is sent free on request. Correspondence cordially invited.

AMERICAN BOOK COMPANY

New York Cincinnati Chicago Boston Portland, Ore.

FRENCH, ENGLISH, MATHEMATICS.

Publications of Christopher Sower Company:

FRENCH.

Books and Methods of Edward H. Magill, A.M., LL.D., ex-President of and Professor of French in Swarthmore College.

MAGILL'S READING FRENCH GRAMMAR.

Teaches rapidly a practical reading knowledge of French. It pays special attention to *the French Verb.* It elucidates *the Common Idioms.* It avoids both *Pronunciation and Composition.* It teaches *to read French.*

MAGILL'S MODERN FRENCH SERIES.

Gives ample practice in reading first-class stories by modern French authors.

Volume I. Francisque Sarcey. Contains two of Sarcey's best stories with his portrait and biography.

Volume II. Madame de Witt (Nee Guizot). Contains a romance of great interest and high moral tone, with portrait and biography of the author.

Volume III. Anatole France. Contains a charming modern French story, with portrait and biography of author. [Other Volumes in Preparation.]

Each volume contains 160 pages of French text, punctuated according to French usage and carefully annotated. Each volume is well printed and bound in cloth. Each is the work of a living author and is used with his express permission and approval.

ENGLISH.

PRACTICAL ENGLISH GRAMMAR.

By Judson Perry Welsh, A.M., Principal of State Normal School, Bloomsburg, Pa.

COMMON SCHOOL LITERATURE.

By J. Willis, Westlake, late Professor of English Literature in the State Normal School, Millersville, Pa.

MATHEMATICS.

Books and Methods of Edward Brooks, A.M., Ph.D., Superintendent of Philadelphia Public Schools.

ARITHMETIC.

Brooks's New Standard [*four books*]. 1. New Prim ry. 2. Elementary. 3. New Mental. 4. New Written.

Brooks's Union Arithmetics. 1. Union. Part I. 2. Union, Complete. (The latter is bound also in two volumes, called Part 2 and Part 3.)
The new Standard Arithmetics separate oral and written work. The Union Arithmetics combine oral and written work.

Brooks's Higher Arithmetic. A very comprehensive work on the science and modern practice of arithmetic for advanced classes.

Brooks's Philosophy of Arithmetic.

ALGEBRA.

Brooks's Elementary Algebra. A simple, clear and thorough treatise.

GEOMETRY AND TRIGONOMETRY.

Brooks's Elementary Geometry and Trigonometry.

Brooks's Plane and Solid Geometry.

Brooks's Plane and Spherical Trigonometry.

The Brooks's Mathematical Series is used in hundreds of cities and towns and thousands of schools and school districts in the United States.

CHRISTOPHER SOWER COMPANY,

Publishers, 614 Arch Street, PHILADELPHIA.

SCHOOL LIBRARIES

HOW TO GET ONE.
WHY TO GET ONE
WHERE TO GET ONE.

If you teach a school, or have a child in school, or wish to help a school, then you are interested in the subject of School Libraries, and are invited to send to Messrs. HARPER & BROTHERS for their new Illustrated Library Bulletin, which will be sent without charge upon application. - - - - - - - -

The School Library number of Harper & Brothers' Bulletin of Text-Books for Schools and Colleges is a very interesting publication for teachers. Portions of a voluminous correspondence are contained in it, showing that in many States there is strong sentiment in favor of the establishment, but as an essential in the educational system. A brief and extremely suggestive history of school-district and public libraries is contributed by Melvil Dewey. A few words are reprinted (by the author's permission) from the *Atlantic Monthly;* enthusiastic suggestions from Nebraska are given; the value of school libraries in connection with class-work is set forth by a correspondent of wide experience; and an interesting paper is presented for the first time, entitled "School Libraries in the Past." Five lists have been presented from the publications of Harper and Brothers of books suitable for school libraries. In list No. 1 are given twenty-five standard works for $10; in No. 2, a 25-dollar school library; in No. 3, a 50-dollar library; in No. 4, 100-dollar library, and in No. 5, a larger school library. Every teacher should have this bulletin.—*School Journal,* March 10, 1894.

Address, HARPER & BROTHERS, Publishers, Franklin Square, New York City.

Victors LEAD THE WORLD

OVERMAN WHEEL CO.

BOSTON NEW YORK. PHILADELPHIA
CHICAGO. DETROIT. SAN FRANCISCO.
DENVER

NORTHROP'S
STAMPED STEEL CEILING,
Durable, Decorative, and Best

possible to use in School Buildings. Send for catalogue. Give diagram or measures for an estimate.

H. S. NORTHROP,
30 Rose Street, NEW YORK.

4 Liberty Square, Boston,
99 Washington Street, Chicago.

KODAKS $6.00 to $100.00

Eastman Kodak Company,

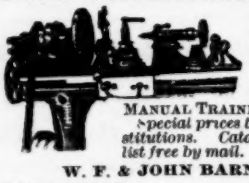
{Send for Catalogue.} Rochester, N. Y.

MAGIC LANTERNS AND VIEWS

For Public Lectures, School, Church or Homes. - World's Fair and other interesting subjects. Send 3c. stamp for Catalogue. A. MARCY SCIOPTICON CO., 1008 Walnut St., Philad'a., Pa.

STEREOPTICONS.
MAGIC LANTERNS AND ACCESSORIES. SEND FOR CATALOGUE TO CHAS BESELER MAKER 218 CENTRE ST. NEW YORK.

Barnes' Foot and Power Machinery.



Lathes for wood and meal work, Scroll Saws, Circular Saws, etc. Specially adapted for use in INDUSTRIAL and MANUAL TRAINING SCHOOLS.
Special prices to Educational Institutions. Catalogue and price list free by mail.

W. F. & JOHN BARNES CO.,
911 Ruby Street, ROCKFORD, ILL.

Our advertisers know of this paper's many readers but desire to know them better. When writing therefore, always mention it; and write often. They have goods that will benefit you.

The Massachusetts Mutual Life Insurance Co.,
1851— SPRINGFIELD, MASS. —1894

JANUARY 1, 1894.

Assets, $14,480,480.80. Liabilities, $13,460,163.84. Surplus, $1,020,316.96.

If you will write your name, date of birth, and address, in the blank form below and send it to the above address, we will take pleasure in showing you, not an "estimate" but a statement showing the exact values in cash and paid up insurance which would appear in a Policy issued at your age.

I was born on the.....day of.....in the year.....

My name is.....

My address is.....

W. Beverley Harison 59 Fifth Ave. New York

Vertical Penmanship
The natural system the most easily taught
Hygienic position quickly acquired
Producing a legible rapidly written
bold and beautiful hand
Enclose 25 cents in stamps for samples

copyright 1893 W. B. Harison

ATTENTION—TEACHERS

THERE IS NO ONE ARTICLE WHICH CAN BE OFFERED TO STUDENTS PROVING QUITE AS STIMULATING AS A

BADGE OR MEDAL.

I HAVE MANY DESIGNS OF SUCH.

ATTENTION—CLASSES

YOU WILL REQUIRE *PINS OR RINGS, BUTTONS,* FLAG PINS OR A SOCIETY PIN AS MEMENTOES OF SCHOOL ASSOCIATIONS. SEND TO ME FOR DESIGNS

E. R. STOCKWELL, 17 John Street, NEW YORK.

KINDERGARTEN AND SCHOOL SUPPLIES.

J. W. SCHERMERHORN & CO.,
3 EAST 14TH STREET, NEW YORK.

Everything for the Schools

FURNISHED BY
Peckham, Little & Co.
86 READE STREET, N. Y.

SLOYD

Benches, Tools and Supplies.

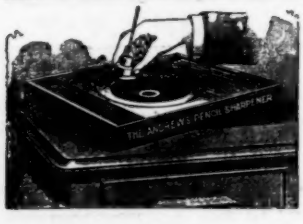
Lowest Prices. Headquarters. Send for catalogue.

Chandler & Barber, 15-17 Eliot St. BOSTON.

J. M. OLCOTT,

HEADQUARTERS FOR
W. & A. K. Johnston's Wall Maps, and all kinds of SCHOOL SUPPLIES,
9 West 14th St., New York.

The live reader of this paper usually writes several times a month to one or more of its advertisers and mentions it every time.



THE ANDREWS SLATE PENCIL SHARPENER.

A simple and practicable device for sharpening stone slate pencils. It does the work quickly, is easy to operate, makes no dust and is portable.

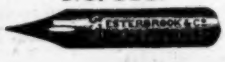
Price, $1.00.

Send us $1 00 and we will forward, by express, Sharpener with tills, or by mail, postpaid, same without tills. (See cuts.) If you are not perfectly satisfied you may return the sharpener and receive your money back.

ANDREWS SCHOOL FURNISHING CO., M'f's of School Apparatus & Supplies
Catalogue sent upon application (Mention this paper.) 76 Fifth Avenue, NEW YORK.

ESTERBROOK'S STEEL PENS.

No. 333.



Standard School Numbers.
333, 444, 128, 105 and 048.
For sale by all Stationers.
ESTERBROOK STEEL PEN CO., 26 John St., N. Y.

TEACHERS' AGENCIES.

TEACHERS CO-OPERATIVE ASSOCIATION
6034 Woodlawn Av. CHICAGO

Established in 1884. Positions filled, 3700. Seeks Teachers who are ambitious for advancement rather than those without positions.

UNION SCHOOL BUREAU
Registers the Best Teachers. CHARGES NO ADVANCE REGISTRATION FEE. Postage only; *but depends on actual results. Does not our plan commend itself to you?* 3486 Positions Filled. First year salaries amount to $2,264,850.00. ☞ Constant vacancies. Send stamp for blanks.

KERR & HUYSSOON, Managers, 2 W. 14th Street, NEW YORK.

THE FISK TEACHERS' AGENCIES.
EVERETT O. FISK & CO., Proprietors.

SEND TO ANY OF THESE AGENCIES FOR 100-PAGE AGENCY MANUAL, FREE.

7 Tremont Pl., Boston, Mass.; 70 Fifth Ave., New York; 106 Wabash Ave., Chicago, Ill.; 371 Main St., Hartford, Ct.; 120 1-2 So. Spring St., Los Angeles, Cal.; 132 1-2 First St., Portland, Ore.

THE PENNSYLVANIA BUREAU,
"Extensive and Unusual Facilities."

15th Year. Does Business in all the States.

L. B. LANDIS, MANAGER, 205 N. 7th Street, Allentown, Pa.

"Unremitting attention to the wants of Patrons."

THE NEW AMERICAN TEACHERS' AGENCY.
Teachers seeking positions and those wishing a change at an increased salary.

Address O. B. RUGGLES & CO., (Palace Hotel B'ld'g) Room C, 237 Vine Street, CINCINNATI, OHIO.

THE BRIDGE TEACHERS' AGENCY
Boston and Chicago.

One Fee Registers in Both Offices. Send for Agency Manual.

Business Offices: 110 Tremont St., BOSTON. 211 Wabash Ave., CHICAGO.

ALBANY TEACHERS' AGENCY.
Prin. Oscar E. Coburn, of Kinderhook, N. Y., writes as follows: "I enjoy the work here very much, and feel more than paid for joining your Agency. I know that the Agency is a benefit both to teachers and to schools." *Send stamp for Application Form.*

HARLAN P. FRENCH, Manager, 24 State St., Albany, N. Y.

FOR SEPTEMBER.
We have more than twice as many vacancies as we had one year ago this time. Salaries good, positions, many of them very desirable. New Hand Book gives full information.

The Albert Teachers' Agency, 211 Wabash Ave., Chicago.

The National League of State Teachers' Bureaus
A BUREAU IN EACH STATE—ONE FEE REGISTERS IN ALL.

FRANK E. PLUMMER, General Manager, *Central Office*, DES MOINES, IOWA.

The **League Recommends** teachers direct. Let us represent you to schools and colleges that **select their teachers through** our LEAGUE OF BUREAUS **before the vacancies become public**, and thus avoid sharp competition.

One year's subscription to *The National Teacher and School Board Journal*, an educational newspaper, **Together with** enrolment in all branches of the **League for one fee**, by registering **now**.

Write for full list of **State Managers** and illustrated circulars to

FRANK E. PLUMMER, General Manager, Des Moines, Iowa.

THE TEACHERS' EXCHANGE, Des Moines, Iowa.
An Agency for Teachers, Schools and Colleges. Founded by HENRY SABIN. The Exchange needs the names of good teachers to fill the best positions in Iowa and adjoining States. It has the confidence of Boards and Superintendents. Its methods are strictly professional. No commission unless direct aid is given. Circulars and blanks free.

C. W. MARTINDALE, Des Moines, Iowa.

WANTED TEACHERS
For public schools, private and commercial schools in the West, East, North and South. Male and Female. Also for special studies, music, drawing, manual training, etc.

Address Editor THE AMERICAN School Board Journal Milwaukee Wis

AMERICAN AND FOREIGN TEACHERS' AGENCY
Introduces to colleges, schools, and families, superior Professors, Principals, Assistants, Tutors, and Governesses, for every department of instruction; recommends good schools to parents. Call on or address

Mrs. M. J. YOUNG-FULTON,
American and Foreign Teachers' Agency,
23 Union Square, New York.

TEACHERS' AGENCY
OF RELIABLE

American and Foreign Teachers, Professors, and Musicians of both sexes for Universities, Colleges, Schools, Families and Churches. Circulars of choice schools carefully recommended to parents. Selling and renting of school property.

E. MIRIAM COYRIERE,
130 Fifth Avenue, cor. 20th St., NEW YORK CITY.

COME TO THE SOUTHLAND.
We place competent teachers in correspondence with school officers and supply the public schools of the South and West with suitable teachers. Register early—first come is first served. 4,000 changes made each year in Texas alone. With the largest permanent school fund of any state, good salaries and a mild climate, Texas is the teachers' Mecca. Address with two cent stamp for application blanks, &c.,

TEACHERS' CO-OPERATIVE AGENCY,
Box 407, San Antonio, Tex.

An Agency is valuable in proportion to its influence. If it merely hears of vacancies and tells you about them *that* is something, but if it is asked to recommend a teacher and recommends you, that is more. Ours *Recommends.*

C. W. BARDEEN, SYRACUSE, N. Y.

Schermerhorn's Teachers' Agency.
Oldest and best known in U. S.
Established 1855.
3 EAST 14TH STREET, N. Y.

For larger salaries, or change of location, address Teachers' Co-operative Association, 6034 Woodlawn Ave., Chicago. ORVILLE BREWER, *Manager.*

VACANCIES
for September 1894 are now coming in daily. We are asked to recommend Superintendents for salaries $1200 to $1800, also a great many normal assistants at $400 to $700. *Now* is certainly the time to register. The NEW YORK EDUCATIONAL BUREAU *recommends* good candidates and takes pleasure in sending full particulars about teachers *free* to any employer of teachers. A large number of positions come annually to this BUREAU. No doubt you can fill many of them. One of the best opportunities is the superintendency of a large private school, requiring investment of $12,000 to $15,000 paying $6,000 (practically guaranteed) or more annually. What is your want? If a first class teacher is wanted anywhere, any dept., write fully to

H. S. KELLOGG, Manager, 61 East Ninth Street, New York.

Telephone No. "1250 18th St."

Simple Microscopes, Plant Presses and Collecting Cases,
ETC., FOR
SCIENCE CLASSES.

Write for special circular BB, and quotations on what you need.

QUEEN & CO.,
Microscope Makers, PHILADELPHIA.

ESTABLISHED 1851.
EIMER & AMEND,
205-211 Third Ave.,
NEW YORK.

Everything necessary for the Chemical and Physical Laboratory will be furnished of best quality at reasonable prices.

Glass and metal apparatus, special, made to order, according to drawings.

Glass blowing and engraving done on premises.

SAFES.

BUTLER'S "DIEBOLD" SAFES
Cheapest—Because Best.

SECOND-HAND SAFES
ALWAYS ON HAND.

W. H. BUTLER,
79 Duane St., NEW YORK
NEAR BROADWAY.

Musical, far sounding, and highly satisfactory Bells for schools, Churches, &c
MENEELY & CO., Established WEST TROY, N. Y. 1826.
Description and prices on application

BUCKEYE BELL FOUNDRY,
—CINCINNATI, O., U. S. A.
Best Grade Copper and Tin School, College & Academy BELLS
Price and Terms Free. Name this paper.

BARNES' INK

CROWN AND BRIDGE WORK.
Teeth without Plates.

The special and scientific branch of dentistry known as Crown and Bridge Work, requires the most accurate adjustment with perfect mechanical construction to insure an artistic success and permanency.

Having every facility for this class of work, I can now offer reasonable prices as consistent with first class workmanship. ESTABLISHED 1868.

Dr. W. J. STEWART, 362 W. 23d St., N. Y.

What Is Vitalized Phosphites?

It is the production (of a distinguished physician and chemist) from the ox-brain and wheat germ. An essential food to all who work either mentally or bodily. It contains in the highest degree the power of sustaining life and energy. It restores those who have overworked, or in any way impaired their vigor, *prevents* debility and Nervous Exhaustion.

For thirty years used, and recommended by the world's best physicians and brain workers. Descriptive pamphlet free. Prepared by THE F. CROSBY CO., only, 56 West 25th St., New York.

Druggists or by mail, $1. Be sure the label has this signature: F. Crosby Co.

Unlike the Dutch Process

No Alkalies
—OR—
Other Chemicals
are used in the preparation of
W. BAKER & CO.'S
Breakfast Cocoa
which is absolutely pure and soluble.

It has *more than three times the strength* of Cocoa mixed with Starch, Arrowroot or Sugar, and is far more economical, *costing less than one cent a cup.* It is delicious, nourishing, and EASILY DIGESTED.

Sold by Grocers everywhere.

W. BAKER & CO., Dorchester, Mass.

THE DENSMORE

is pronounced "The World's Greatest Typewriter" by its users because of its

Great Convenience and the Number of Ends attained; Light Key Touch, Ease of Operation and Rapidity; Wearing Qualities and the Provision for Good Alignment; Compactness, Proportion, Finish and Beauty.

Recently adopted on competition by the U. S. war department. Eighteen just ordered for the use of the Boston Globe. Twenty in use by the Carnegie Steel Co. The 1894 Model contains strong new features that are attracting much attention.

Offices in all the principal cities. Pamphlets free.

DENSMORE TYPEWRITER CO.,
202 Broadway, New York.

BEST FACILITIES FOR supplying teachers, all departments. First-class teachers wanted. N. Y. EDUCATIONAL BUREAU, 61 East Ninth St., N. Y

A Tonic

For Brain-Workers, the Weak and Debilitated.

Horsford's Acid Phosphate

is without exception, the Best Remedy for relieving Mental and Nervous Exhaustion; and where the system has become debilitated by disease, it acts as a general tonic and vitalizer, affording sustenance to both brain and body.

Dr. E. Cornell Esten, Philadelphia, Pa., says: "I have met with the greatest and most satisfactory results in dyspepsia and general derangement of the cerebral and nervous systems, causing debility and exhaustion."

Descriptive pamphlet free.

Rumford Chemical Works, Providence, R.I.

Beware of Substitutes and Imitations.

JOSEPH GILLOTT'S STEEL PENS,

The Most Perfect Pens Made,

HAVE FOR FIFTY YEARS BEEN THE STANDARD.

His Celebrated Numbers

303, 404, 604E.F., 351, 601E.F., 170,

and his other styles may be had of all dealers throughout the world.

GOLD MEDAL, PARIS EXPOSITIONS, 1878 and 1889,

And the *Award* at the *World's Columbian Exposition, Chicago.*

JOSEPH GILLOTT & SONS, 91 John Street, NEW YORK.

"Paragon" and "Excelsior" Lanterns

for illustrating lectures before classes and for entertainments;—operated by petroleum, lime light, or electric lamp.

They are guaranteed to sustain every claim, and are endorsed by eminent scientists.

Full particulars and Catalogue H. upon application to

QUEEN & CO., (Incorporated.)
PHILADELPHIA, U. S. A.

Ask for General Abridged catalogue No. 219.

DON'T GO to school to learn Book-keeping, but write to J. H. GOODWIN, 617, 1215 Broadway, N.Y.

The Caligraph Typewriter

Excels in workmanship, speed and durability.

Excels in real improvements that go to make a perfect writing machine.

Excels in design of keyboard and ease of manipulation.

Excels in permanent alignment.

Let us send you a catalogue.

American Writing Machine Co.,
HARTFORD, CONN., U. S. A.

THE
HAMMOND TYPEWRITER

McALLISTER M.F.G. OPTICIAN 49 NASSAU ST. NEW YORK.

FOR MAGIC LANTERNS, STEREOPTICONS, AND MANY THOUSANDS OF VIEWS ILLUSTRATING EVERY SUBJECT.
ENTERTAINMENT
HOME INSTRUCTION
AMUSEMENT
PUBLIC EXHIBITIONS
CHURCH & SUNDAY SCHOOL WORK.
COLLEGES
SECRET SOCIETIES
SEND FOR 240 PAGE CATALOGUE FREE.
A PROFITABLE BUSINESS FOR MAN WITH SMALL CAPITAL.

Criterion and Parabolon Magic Lanterns

and Stereopticons. Oil, Lime, or Electric Light interchangeable, Microscope, Vertical, Polariscope and other attachments.

Views of World's Fair, Art, Scripture and other subjects for *Profitable* Public Lectures or private use. Catalogues free.

J. B. COLT & CO., 16 Beekman Street, New York. 189 La Salle Street, Chicago, Ill.

THE SCHOOL JOURNAL

A Weekly Journal of Education.

Vol. XLVIII. For the Week Ending March 17. No. 11

Copyright, 1894, by E. L. Kellogg & Co.

The business department of THE JOURNAL is on page 289.

All letters relating to contributions should be addressed plainly, "Editors of SCHOOL JOURNAL." All letters about subscriptions should be addressed to E. L. KELLOGG & Co. Do not put editorial and business items on the same sheet.

STATE SUPT. VICTOR M. RICE, of New York remarked at a meeting of the state association of teachers that he was ashamed to see the spirit with which teachers regarded the highest certificate—the state diploma. They wanted to obtain it without study or labor, merely asking for it and backing up their request by enclosing letters from politicians! In one case Mr. Rice said seven letters were enclosed, all in the handwriting of the applicant! This is probably the experience of most state superintendents.

The state certificate or diploma should be what it claims to be, an evidence of unusual scholarship and success in teaching. In some states the county officers refuse to recognize the certificates issued by the supreme educational official, knowing they have been obtained by no examination, and on no evidence of ability whatever. In New York and some other states the state superintendent no longer issues certificates to political favorites; the applicant must appear before a board of examiners and his qualifications be tested.

The best teachers are those who have the brightest, clearest, and noblest conceptions of education. This may demand scholarship, scientific attainments, and much communion with books, but these are means only after all. Education is the process of the mind toward higher stages. There are men of immense scholarship who cannot initiate or help on this process; the teacher is one who knows how to effect this. Some men have an instinctive perception of ways to set the mental machinery in motion; some set it in motion out of curiosity. The great teachers feel themselves to be acting in God's behalf; they are, and they feel themselves to be, heaven sent; education to them is going towards God.

There is a fear on the part of some of influences arising from the religion of the teacher. But a teacher is not Catholic, Protestant, or Jew, no more than a physician is. Travelers meet and impart information of what they have seen and heard; they do not ask, "Are you a Protestant traveler?" "Are you a Catholic traveler?" They do not think of this side of the man's character at all; they think of his description of Mount Blanc, of Vesuvius, of Niagara. Very few of the children of the schools of this city think of the religion of their teachers. They do think whether they are reverent, whether they have high purposes. It is a mistake to suppose that a Catholic teacher is trying to make Catholics of his pupils; his aim is truly character. There is no such thing as a Catholic character, a Protestant character.

The schools should foster patriotism, to be sure, but not that kind which breeds prejudices and hatred toward foreigners. If that were the aim all the teacher would have to do would be to encourage ignorance and the reviling of everything not American. The kind of patriotism that is in need of cultivation is that which while inspiring the children with love of their country and its institutions above everything, carries their sympathies beyond the barriers of territory, race, and language, and makes them feel that all nations are part of a great whole which is civilization, and that every American must do his part toward making his own nation a strong contributor to the best forces of the whole.

President Eliot's suggestions regarding college athletics, an outline of which was published in THE JOURNAL of last week, will bring about a great change in college life, if generally adopted. Too much time has been devoted to intercollegiate athletic contests, in the past year. Boys are not sent to college to become experts in playing base-ball, to run the risk of being killed in foot-ball contests, etc. It is high time that the young men should learn to understand the true objects of the college. There is no danger that a man who cannot kick foot-ball will be a weakling. Athletics, THE JOURNAL has always held, are excellent as means to promote physical health and prowess, but excessive devotion to them brutalizes man and thus deprives them of their educative value.

Guizot, who did much to organize the French system of primary instruction, said in a speech to the chamber of deputies: "What a well-assorted union of qualities is required to constitute a good schoolmaster? A good schoolmaster ought to be a man who knows much more than he is called upon to teach, that he may teach with intelligence and with taste; who is to live in an humble sphere, and yet have a noble and elevated mind, that he may preserve that dignity of mind and of deportment, without which he will never obtain the respect and confidence of families; who possesses a rare mixture of gentleness and firmness; a man not ignorant of his rights, but thinking much more of his duties; showing to all a good example, and serving to all as a counsellor; not given to change his condition, but satisfied with his situation, because it gives him the power of doing good: and who has made up his mind to live and die in the service of primary instruction, which to him is the service of God and his fellow-creatures. To rear masters approaching to such a model is a difficult task, and yet we must succeed in it, or we have done nothing for elementary instruction. A bad schoolmaster, like a bad parish priest, is a scourge to a *commune*; and though we are often obliged to be contented with indifferent ones, we must do our best to improve the average quality."

Natural History in the Lower Schools.

(Report of the conference on this subject appointed by the Committee of Ten.)

To the Committee of Ten:

The conference on the study of natural history (biology, including botany, zoölogy, and physiology) in elementary and secondary schools met December 28, 1892, at the University of Chicago.

There were present at the first session Prof. O. E. Bestey, of the University of Nebraska; Prof. S. F. Clarke, of Williams college; Prof. D. H. Campbell, of Leland Stanford, Jr., university; Pres. J. M. Coulter, of the Indiana university; Prof. C. B. Scott, of the St. Paul high school; and W. B. Powell, of Washington, D. C.

W. B. Powell was made chairman and Prof. C. B. Scott secretary of the committee.

At subsequent sessions Prof. A. H. Little, of the University of Virginia, and Prof. A. C. Boyden, of Bridgewater normal school joined the committee.

Six sessions were held. At these sessions full discussion was had respecting the work in biology, adapted to primary schools, grammar schools, and high schools.

Courses of study were discussed at length and compared, while methods of instruction received due consideration by the committee. After full and harmonious discussion, in whose conclusions there was finally perfect agreement, results were reached as set forth in the following:

ANSWERS TO QUESTIONS SUGGESTED BY THE COMMITTEE OF TEN.

Question 1. In the school course of study extending approximately from the ages of six years to eighteen years—a course including the periods of both elementary and secondary instruction—at what age should the study, which is the subject of the conference, be first introduced?

Resolved, That it is the judgment of the conference that while the principles of hygiene should be included in the work of the lower grades, the study of physiology as a science may best be pursued in the later years of the high school course.

Resolved, That the study of natural history (botany and zoölogy) should begin in the primary school at the beginning of the school course.

Note.—The study of both plants and animals should begin in the lowest grades, or even in the kindergarten. One object of such work is to train the children to get knowledge at first hand. Experience shows that if these studies begin later in the course, after the habit of depending on authority—teachers and books—has been formed, the results are much less satisfactory. Experience shows also that if from the beginning "nature study" is closely correlated with or made the basis of language work, drawing, and other forms of expression, the best results are obtainable in all.

Question 2. After it is introduced how many hours a week for how many years should be devoted to it?

Resolved, That no less than one hour per week, divided into at least two periods, should be devoted throughout the whole course below the high school to the study of plants and animals; that in this study no text-book should be used, and that these observation lessons should, as far as possible, be made the basis of, or correlated with, work in language, drawing, and literature.

Note.—It is agreed that, by exercising forethought in collecting materials and judgment in planning the work, the study of natural history can be continued, to the best advantage throughout the whole year, instead of being confined to the fall and spring, as is now the practice in most schools where the study is pursued. Much can be studied during the winter which is not accessible at any other time. * * * * * *

Question 5. What topics or parts of the subject may best be reserved for the last four years?

Resolved, That the general comparative morphology of plants and animals be recommended as the part of natural history most suitable for study in the secondary and lower schools; that in the primary and grammar grades should be a study of gross anatomy, and in the secondary schools a study of minute anatomy.

Note.—The study of botany and zoölogy should include a general view of the plant and animal kingdoms Limiting the study of botany to flowering plants and of zoölogy to two or three sub-kingdoms of animals, gives the learner imperfect and distorted ideas. The plants and animals selected for study should be typical forms or types, and at the same time, when possible, forms familiar to the students or common in their vicinity. In the lower grades the work should be a study of living forms of the plant growing and of the animal in action. Here the steps should be (1) life and function, (2) structure, (3) comparison. Mere analysis or identification is believed to be of very little value. Too many scientific or technical terms should be avoided. No text-book should be used below the high school.

The work in the high school should be a study of minute anatomy and classification.

Throughout all the work the aim should be to make the observations and notes of the pupils systematic, clear, and exact. Careful drawings should be insisted on from the beginning. If effort is made to have the pupils obtain clear and exact ideas, and to express them clearly and exactly in words or by drawings, the study will be successful as a department of science, and at the same time valuable and efficient as an aid in training pupils in the art of expression.

WORK SUGGESTED.

It was agreed that Prof. C. B. Scott, of the St. Paul high school, should outline a course of nature study, including both botany and zoölogy, for grades of school below the high school.

That Prof A. Albert H. Tuttle, of the University of Virginia, should outline a course in physiology for primary and secondary schools.

Nature Study for Grades of Schools Below the High School.

GENERAL PRINCIPLES AND PLANS.

Objects.—1. It must be remembered that the primary object of nature study is not that the children may get a knowledge of plants and animals. The first purpose of the work is to interest them in nature. This must be done before other desirable results can be obtained. The second purpose is to train and develop the children; *i. e.*, to train them to observe, compare, and express (see, reason, and tell); to cause them to form the habit of investigating carefully, and of making clear, truthful statements, and to develop in them a taste for original investigation. The third purpose is the acquisition of knowledge. This, however, must be "gained by actual experience," and it must be "knowledge classified" or science.

For the attainment of these objects, interest, power, knowledge, *the children must study the plant;* no book should be used by them. The effort of the teacher should be so to interest and guide them that they will be learn how to work profitably.

MATERIALS.

2. The children should study the plant as a whole, not merely a part as seeds, leaves, flowers; it is a mistake to limit the work to one part to the exclusion of the others, and is as great a mistake to allow the children to study the parts without leading them to see the mutual relations and dependence of the parts.

3. The study should not be restricted to flowering plants, as trees and weeds, but should be extended as well to flowerless plants, such as ferns, horse-tails, mushrooms and toadstools, mosses, lichens, fungi, and fresh and salt water algæ. Those children who carry the work through eight years should obtain a fair idea of the plant kingdom, including its principal divisions. Those who stop short of the eight years' work should have a general idea of the whole plant as a type of the plant kingdom, more or less detailed and generalized according to the amount of time spent in school.

METHODS.

4. The plant should be studied as a living organism and not merely as a form or structure. The child should learn that each part has something to do, and he should discover that what it does, and the way in which it does it, determines its form and structure. The study of seeds, buds, or flowers, should begin with growth and development or unfolding, which should lead to an investigation of use or function, and, finally, to an examination of structure. The comparison of the uses and structure of different plants results in classification.

The order of study is:

Life, growth, and development.
Use or function.
Structure,
Comparison,
Classification.

5. The plant should be studied in its relation to its environment,—light, air, water, soil, climate, and other plants, and in its relations to the lower animals and to man. For the time being the plant is the center of the world. The study furnishes many opportunities for co-ordinating science work with the other studies of the school, and at the same time for showing man's use of plants and his dependence on them.

6. As young children cannot generalize, it seems wise to limit the work during the first two years to the study of the germination, growth, and structure of three or four typical plants, like the bean, pea, and sunflower, studying of course only those features that are easily understood. Gradually more details may be studied, and other kinds of plants, flowering and flowerless, examined, causing the pupils' ideas to be more and more complete and generalized.

7. Whatever is being studied, the questions to be answered are: What? Why? How?

First: What does it do, and what is it?

Second: Why does it do so, and why is it so?

Third: How does it do it, and how did it become so?

At first little can be done but answer the question "what;" gradually "what" includes so many particulars that an answer to "why" becomes possible; before the end of the course, "how" can and should be answered.

8. In the study, during the earlier years, of germination and of buds and flowers, that which appeals most to the children is the provision for protection and care of certain parts; later the perfect order of nature will be seen, when the idea of system and plan may be developed. In time the highest function of the plant must be shown, that of reproduction, when the plant should be studied as an arrangement for producing seeds. While all these thoughts should be developed by slow degrees from the beginning, it seems wise to emphasize them in the order suggested. The central thoughts should be:

For the first and second years, care and protection.
For the third, fourth, and fifth years, order and system.
For the sixth, seventh, and eighth years, reproduction.

EXPRESSION.

9. Observation becomes more critical if its results are expressed by the observer. For the younger children, motion, stitching, modeling, drawing, painting, are more expressive than specch. Speech, as the most universal method of communicating ideas, should be emphasized in all but the earliest years of the course. A drawing gives better ideas of form and of relations of parts than can be given by verbal description. It will be found that often the simplest and quickest way for pupils to get clear, sharp ideas about the objects they are studying is to have them draw the objects.

CO-ORDINATION WITH OTHER STUDIES.

10. Nature study will not succeed unless it is co-ordinated with other studies. It should not be pushed into the course as an extra, but should be made the basis of much of the other work of the school. Experience has shown that when it is used as a basis for the early training in language and drawing, an interest in these studies is easily secured and sustained. It is more pleasing to pupils to express ideas, resulting from their own observations, than to copy the expressions of others, or to put it into somewhat different form expression obtained from teacher or book. The study of nature is a necessary preparation for a full understanding of much beautiful and valuable literature. Opportunities for connecting such work with geography are almost numberless. By means of this work, even arithmetic may have a reality, and thus new life, infused into it.

Course of Work.

FIRST AND SECOND YEARS.

(Central thought: Care and protection.)

SEEDS AND GERMINATION.

Let the children:

I. Plant beans and watch their growth.

II. When the seedlings are two or three inches high, study the seed in its parts.

III. Study the pea in a corresponding way, and then compare it with the bean, noting first the differences and then the resemblances.

IV. Study seed and plant, in each case, in relation to their surroundings, air, water, and sunlight. (Children should be led to discover the uses of the different parts, first to the plant and then to the animals and man.)

V. Continue the observations on the bean and the pea during the remaining part of the school year, noting the development, use, and general structure of buds, stems, roots, leaves, and, if possible, of flowers and fruit.

BUDS.

The study of buds should be carried on in connection with the work in germination suggested above.

Let the children:

I. Gather branches having large buds, such as horse-chestnuts, the elder, or the lilac; put them in water; watch them, and tell about their development and the gradual unfolding of their parts.

II. Study the stem and its parts, wood, bark, and pith, their uses and structure.

III. Later, study fresh buds, and compare them with those which have unfolded.

IV. Compare the first bud studied with some other large bud.

REPRODUCTION AND FLOWERS.

In connection with the study of buds, call the attention of the children to the catkins of the willow, the poplar, and the hazel, and then to the flowers of the elder, the lilac, and, if possible, of the bean and pea.

Let the children:

I. Find dust-bearing (staminate) and seed-bearing (pistillate) flowers and parts of flowers. (This will give opportunity to develop the idea that flowers are for the production and protection of seeds.)

II. Study the dissemination of seeds that fly, as those of the dandelion and the milkweed; seeds that sail, as those of the maple and the basswood; seeds that stick, as those of the burdock and the tick; seeds that fall, as those of the bean and the pea.

III. Study fruits. (They should learn the use of fruit to the plant and to man.)

As early as may seem wise the teacher should develop, largely by stories and supplementary reading, the use of the other parts of the plant to the flowers and seeds.

RESULTS OF TWO YEARS' WORK.

At the close of the second year the children should have a fair idea of the plant as a whole, knowing something of all its parts, of their uses and relations, and particularly of the ways in which the plant and its parts are cared for and protected.

THIRD AND FOURTH YEARS.

(Central thought: Care and protection leading to order and system and plan.)

SEEDS AND GERMINATION.

Let the children:

I. Study the bean, the pea, the sunflower, and the

pumpkin, as before, but more in detail, discovering something of the order or plan of growth, and searching for answers to the questions "why" and "how"

II. Study, more in detail, plants before studied, and examine other plants to learn the uses of the different parts of the seedling and the relation of the plant to its surroundings.

III. Discover where the seeds are formed, how they escape from the ovary, and how they are disseminated.

IV. Compare the development and structure of the seeds suggested above with those of the morning-glory and the four o'clock, and learn the classification into albuminous and exalbuminous seeds.

BUDS.

Let the pupil:

I. Study the same buds as before, but more in detail, to discover the order shown in the buds and their parts.

II. Compare these with several other buds, including some of the small ones, for the purpose of noticing their positions and arrangements, as well as their protection.

LEAVES.

Let the children:

I. Watch the unfolding of the leaves in the bud and notice their protection and arrangement—as suggested before.

II. Note the uses of leaves and their parts, stipules, stalk, and blade, and of veins, epidermis, breathing pores, and pulp. (In connection with the uses of veins they should study venation.)

III. Study the positions, arrangements, and parts of leaves with reference to their uses; their relation to sunlight, air, rain, and the directing of water to the roots.

IV. Study the positions of leaves with reference to buds, and note the order and plan shown in bud and leaf.

By means of charts or blackboard outlines, to which pupils may constantly refer, they should be familiarized with the more common forms of the leaf as a whole and of base, apex, and margin, and should be trained to give orderly, exact, concise descriptions.

REPRODUCTION AND FLOWERS.

Develop by the study of the flowers themselves the fact that there are two kinds of flowers, those with seed boxes (pistillate) and those with boxes containing a powder (staminate); by the study of the willow, maple, and early meadow-rue, develop the fact that these two kinds of boxes may be, and usually are found, in the same flower.

Let the children:

I. Discover that both seed boxes (ovaries) and pollen boxes (anthers) are found in all kin ds of flowering plants. (Both, then, must be very important.)

II. Note how well they are protected in bud and flower. (The floral envelope can be studied simply, at this stage, as a protection for stamens and pistils.)

III. Now study the use of the pollen and its functions in the formation of seeds.

IV. Note the order and plan of the flower and of its parts.

V. Learn now the fact that the main work of the plant is to produce seeds, and that root, stem, and leaf coöperate in this work.

RESULT OF FOUR YEARS' WORK.

At the close of the fourth year the pupils should be thinking about the "why" and the "how" of the world around them; they should have some knowledge of the order and system which prevails in nature, and should begin to comprehend something of the plan of common plants, of their reproduction and growth, and of the general uses and the gross structure of their parts.

PHYSIOLOGY IN PRIMARY AND SECONDARY SCHOOLS.

"It is the judgment of this conference that; while the principles of hygiene should be included in the work of the lower grades, the study of physiology as a science may best be pursued in the later years of a high-school course."

It is their belief, however, that simple and practical instruction upon the subject of personal health and its care may with advantage be given to young children. Such instruction, however, should rather be given and received (as many other things concerning conduct must be received by young children) upon authority, than as an appeal to the judgment of the pupil as based on his physiological knowledge.

Instruction in hygiene adapted to the capacity of young children may be profitably given on the subjects of personal cleanliness; pure air, and the relation of the carriage of the body to healthy respiration; wholesome foods, and moderateness, and regularity in their use; regular and sufficient sleep; regularity in other bodily habits; care as to temperature, and prudence concerning exposure; and abstinence from narcotics and stimulants, and from drugs generally.

Where instruction in physiology and hygiene is required in the primary grades by the law of the state, it may be preceded by a simple account of the structure of the body. It should include brief and elementary discussions of the principal groups of functions; and should lay greatest stress as is the intent of the law in most cases, upon such simple precepts of hygiene as may be clearly understood and practiced by the child.

Growth Comes from Within.

By A. A. UPHAM.

A farmer, who was carrying partly decayed fruit to market, was accosted by a neighbor who said, "Do you sell such fruit as that?" "That is for immediate use, sir!" said the farmer. Isn't that the feeling of many teachers who read educational literature? They read of some device or method and the next day try to put it in practice. It seems to them to be for "immediate use." That may be all right, but, on the other hand, it may be all wrong. That device which some teacher found just adapted to her needs may not fit your case at all. That method which was described for your benefit, to provoke thought, was not intended for immediate application.

Educational reading should be for the purpose of laying foundations. The methods and devices of others should lead us to see the principles, and having grasped them we should think out devices and methods for ourselves. In other words, food comes from without, growth from within.

It is so in other things: why not in educational matters? We are taught in physiology that the food is still outside the body until it is digested by the work of our own organism; then it is ready to be absorbed and assimilated. That which is produced is not what we have eaten, but what we have made, out of what we have eaten.

We are constantly reminded that what a man learns doesn't educate him. The education comes from his meditations on what he has learned. Education is the result of activity, not the result of receptivity. A man's spiritual nature does not necessarily grow because he hears good preaching. It is his own spiritual activity that causes his soul to grow: the preaching may be the means to the spiritual growth, but the growth must come from within.

Read of the devices and methods of others, but study out your own. It is not meant that one should never use the device of another, but such devices should not be our main dependence. David refused to fight in the armor of Saul; but David was no coward. He had that which served his purpose better; he had what he himself had developed!

Another application of the principle that growth must come from within may be seen in *giving* recapitulations to pupils. The recapitulation, or analysis, or schedule, which the pupil works out for himself is a benefit to him; but how many of us have been disappointed, after having arranged a summary, to find that it took no hold on the pupil? The trouble was, we thought he could make bones and muscles out of food, whereas he must have chyle. Let us not forget the method of nature.

An Afternoon at the Zinc Works.

By Miner H. Paddock, Jersey City (N. J.) High School.

Adown the high school stairs, flight after flight, through the long hall, out upon the street; up Bay *via* Barrow, along Grand; in twos, threes, ones; some swinging satchels, hammers, parcels; some on bicycles; all laughing, chattering, merry though restrained, on to the "zinc works," passed the class of June, '94. Good citizens gazed, boys stopped and smiled. It was an unusual sight, but the on-lookers knew its import.

Before us (after a half hour's walk) is the varied mass of the structures of the "works," some low others lofty, forming the partial quadrangle in which are the heaps of ore. Here are the tall chimneys whose greenish flame of burning zinc vapors at night we often have watched, the whitened roof, the heaps of refuse that rise like bluffy hills. The Morris and Essex canal flows so to speak, along the north, convenient for shipping, but the newly constructed railroad at the west has rendered the canal no longer useful.

We are familiar with these parti-colored heaps of ore. Down under the surface of the earth in northern New Jersey some months ago we saw the grim miners with pick and shovels abstracting the metal-bearing rock from its native fissures.

Here is the real zincite—oxide of zinc reddened by the oxide of manganese dissolved through it. In the closed retort of the furnace it yields its oxygen to the incandescent carbon. It is highly crystalline, cleaves easily, about as hard as fluorite (No. 4 in the scale of hardness), sometimes foliated and in quite large masses; occasionally it is transparent and beautiful like garnet, but oftener it is mixed in fine grains with other minerals.

Now we pick up a heavy, black, brittle mass of frank linite. It looks like magnetite. Indeed it is magnetite with a little zinc and manganese mingled with it. Sometimes it attracts the magnet slightly. But it will not reduce in the temperatures employed in these works, so it is thrown out in mountainous heaps, but afterward transported to other furnaces and reduced.

Look at this beautiful green mass which I have just knocked from a block of franklinite. Ordinarily it is opaque, but in this instance it is quite transparent. See it in these other fragments mingled in fine particles with franklinite; here with zincite and with calcite. It makes a notably handsome mineral. It is what we call willemite. No, young miss, not "William might," plain willemite. It is a silicate of zinc. In nature's deep retorts, under mountains of rock, in long-continued heat, the quartz and the zinc unite their affinities, and become wedded in these crytalline green masses. Brown, with manganese or iron mingled with it we call it troostite.

You ask me what is this mass of white mineral. *You* ask me such a question as that? How hard is it? Try it. Do you see this smooth side and that smooth side? What is the angle between them? Now I strike it with the hammer; it breaks. Cleavage? Certainly. What are these shapes? "Rhombohedral." Of course, Now you know your find to be an old acquaintance "It is calcite." To be sure. It is rather out of shape, is it not? And you observe these fine parallel lines running diagonally across it, right across the grain, so to speak, and all through it. The mass is out of shape as if it had been squeezed by surfaces parallel to these unusual fine parallel lines. That explains the shape and structure. It has been subject to great lateral pressure. These lines are similar to the slaty cleavage of slate-rock or rock from which our slates comes, which cleavage of slates, as you learn in your geology, is caused by strong lateral pressure in the earth due to the shrinking of the earth and forcing of the rigid crust down into a smaller space.

That? Jessie, you foolish girl. What does it look like? It flakes off? Certainly. In thin leaves? Yes. Are they flexible and elastic? Well, then, what is it? "Mica." To be sure; you must be prepared to find mica almost anywhere, especially among crystalline rocks.

O ho! what a to-do is this! What do you think you have found now? Such hubbub and clatter! "Break this!" "Give me a piece!" Why, with all this hurrah it must be a gold mine, I am certain. Indeed, that is a great find. You shall all have a piece. There are cartloads about undoubtedly. You can have it for the picking of it up. See this glassy surface; see how this pale green shades into blue or brown. What a lovely tint. What is it called? Why, slag. "Slag?" Yes. "What's that?" Slag is formed in the furnaces. It is some of the refuse. In this instance it is fused, or partially fused, fire-clay. "Is it a mineral?" You might call it one artificially formed. "Would you put it in the collection? *That* is what I want to know." I think I would. You might put in one piece. It would do no harm. What are you throwing it away for? "I don't want it?" Why not? "It is slag. It is not a mineral." It certainly is not a vegetable nor an animal. What would you call it? Those elements have united for man in the furnace precisely as they unite in nature's laboratory and by the same laws

Besides you are ungrateful. This little fragment now despised, but at first admired, has taught you a lesson. You now know an artificially formed mineral. Suppose some one were to bring you a piece of slag and you show yourself ignorant of its nature. Are you not greatly at a disadvantage with all your fine collection? This mineral is your teacher, and saves you from a mortifying situation. Acknowledge your indebtedness, and place it in honorable position among your other instructive minerals.

This slag is an artificial feldspar. The whole family of feldspars, the flesh-colored orthoclase, the green amazon stone, the white albite, the fluorescent labradorite, the iridescent moonstone, the flashing sunstone, the opalescent adularia are all near relatives. Our trap rock, our obsidian, poryphyry, sanidin, pitchstone, lava, pumice are modified forms in nature of this glassy formation of our furnaces. So let us treat this instructive little piece with becoming distinction.

Do you see that rusty brown or yellow heap over there? It looks like a mound of clay. "That is not pretty." Do not be so hasty. Let us see. Here we go. "There is nothing here." "This is only a dirt heap."

Nevertheless it was brought from "Ole Virginny," as the song goes. I want that rusty, corrugated chunk by you, Tom. I strike it a blow with my hammer. You hear a dull sound. It is hollow. Now it flies open and, see! Don't crowd. Stand a little back; I will give you all as many pieces as you want. "How beautiful!" "Isn't it lovely!" "Mine is full of little white, snowy caverns." "Oh, I want one like that!" "Do look into mine with my microscope. It is full of little fairy dells, little glistening grottoes of light lined with pearls."

Yes, they are lovely. Some are full of glassy pilasters, shading into white and greenish tints. Here are bulbs and roses of white strewn over the floor and ceiling, all the more wonderful since they require the lens to reveal them.

This mineral we call smithsonite. It is a carbonate of zinc. You remember that we have some of a deeper green from Laurium, Greece, which you have seen among our material at the school. I shall expect you to examine all these acquisitions of to-day with file, streak table, closed tube, acid, and blow-pipe. You will determine the round of their physical properties and their chemical behavior with your tests. These you will transcribe in your note-books. We have at the laboratory also the sulphide or blende in a very beautiful and attractive mineral called sphalerite, which I will furnish you on our return. Now we are ready to observe some of the processes within the works.

We first enter this building at our left. You observe it is mainly erected to cover the high, oblong, brick furnace in the center. Notice the structure of the latter —brick walls, the lateral ones pierced with rows of openings for retorts. The central part is intensely heated by the flames of burning coal.

The retorts I described to you before starting from

school. Here is one not in use. You see it is about three feet long, ten inches in diameter, round, oval at one end, and brought down to a small opening at the other. It is practically a closed retort, for zinc must be reduced away from the oxygen of the air.

These retorts are placed in the wall of the furnace with the oval end thrust into the flame within, and the narrow neck projecting outward through the openings in the walls. You see them (in the picture) covered with conical hoods of iron. There are probably 150 of these retorts in this furnace. At the left there are heaps of finely ground ore mixed with finely ground coal. A quantity of this is placed in each retort, the opening of the retort partly closed with fire clay, and the contents subjected to heat for twenty-four hours.

The fiery carbon of the coal attacks its chemical affinity of the ore—oxygen—and wins it after a long struggle from the reluctant zinc. The liquid zinc lies in the bottom of the retort, which is placed nearly horizontal, while the CO and CO_2 escape from the neck of the retort in a flame mingled with a little volatilized zinc. The hood detains the zinc which would otherwise be lost.

You see men now ready to withdraw the zinc from the retort. [They obligingly wait while our camera, as we "count forty," catches their similitude.] With a small metallic hoe at the end of a long handle, the molten zinc is brought out into a pan lined with fire clay, and poured into other shallow pans to cool and solidify. The zinc is now called *spelter*, and in that shape is ready for market.

Yes, it is hot work, and the men present a weird appearance surrounded with flame and smoke.

Now let us cross this alley and we come in another building to some of the immense machinery required to furnish power.

On our way here is the iron-throated monster that grinds up in his powerful jaws the huge morsels of ore. See, the men can scarcely lift this dainty mouthful for their voracious pet. Will he crush it? A lift, a strain, a plunge, and it has passed his lips: A grating sound in quick succession, one, two, three, four, and it has disappeared, but we see a stream of dust and crumbs issuing from underneath that composed its mass.

In the power room, why these large steam cylinders and swiftly-shooting piston rods, these high, massive fly-wheels with their swiftly-revolving belts reaching out to adjoining rooms? So much of expense and energy does it require to furnish the draft needed, as we shall see, to separate the white zinc oxide powder and gather it into bags.

Through swiftly-rotating shafts and whirring fans dimly lighted, we arrive at the zinc oxide furnaces. See them at right and left through the long buildings. The process is quite different from the metallic process. The mingled ore and zinc are placed in ovens above the furnace. The carbon, as before, reduces the zinc, but during the process a stream of air is let in through the oven which seizes upon the vaporized zinc converting it into a fine white powder of zinc oxide, ZnO.

The impalpable powder passes from the ovens through flues two feet in diameter along with the gases from the burning coal. The question now is, how to gather in the dust-like powder.

This is accomplished by carrying the dust at great speed through long tubes till it is cooled and then driving the gas and dust into and through a system of cloth bags.

The gases pass through the interstices of the fabric, while the zinc oxide dust is retained. See the huge barrel-shaped, leviathan-like tubes extending back and forth through the long building. They pass out through other rooms to the bagging building whither we follow them.

Up one flight, on the floor of the amphitheater-like bagging room a strange sight greets our eyes. Here are myriads of long bags two or three feet in diameter reaching from the roof, a height of 50 or 60 feet, and connecting at the bottom with the metallic tubes that come from the oxide ovens. It is a forest of canvas.

The product of the ovens is driven into these bags with such force that you can scarcely indent them with your hands, but the fine powder is retained, and tumbling down into the lower part is gathered together, and in another room packed in barrels. Had you thought before that this is one of the processes for obtaining the zinc white we use in the manufacture of paint?

How our ears tingle with the deep, low-pitched incessant vibration of the bags caused by the blows of the fans on the columns of air that come to us through the the tubes! Yes, some of the fine particles will make their way through the sieve of cloth, and you will have all of you, for a time, at least, after leaving, a slightly whitened aspect.

Teachers' Institutes.

The teachers' institute was almost an inspiration. The attempt was made by Horace Mann fifty years ago to lift the school-room out of and up from the mechanical routine which it had inherited and which was confounded with teaching. His eloquent words tore away the mask. The round of exercises with readers and arithmetics that was performed under a supposition that it was the proper way to keep school was bound to disappear; that was the Old Education of that day. To spread the New Education (the kind that had commonsense in it, some philosophy, and some of the methods of Pestalozzi) there was need of the making known of methods to take the place of those that must be banished. The teachers of the counties were called together for instruction and thus the teachers' institute arose.

Fifty years have passed since the founding of teachers' institutes, and it is a good question to ask, Does the teachers' institute meet the wants of the teachers of to-day? Possibly this might be better said thus: Is there not a better means of aiding the teachers to-day than the institute? The institute has been an agency of immense good; it has done a splendid work. But the teachers of 1894 are a different class from those of 1844. The institute cannot do for them what it did for their predecessors fifty years ago.

After the institutes had come into operation, far sighted men like Gideon Hawley, Francis Dwight, and Bishop Alonzo Potter in New York saw that instruction for some lengthy period was necessary in order to fit the teacher properly for his work; and they laid the foundation of the normal school. Firmly believing in this idea of instruction for a period of considerable length of time the state of New York has continued to spend money for normal schools, until, from appropriating $10,000 per year with great reluctance it now appropriates $300,000 and proposes to add soon an eleventh school and make further appropriations of money. The cities of the state give almost an equal amount, New York city giving $100,000.

Hon. A. S. Draper who so admirably administrated the office of state superintendent of schools, was obliged to declare that the institutes were the weakest feature in the school system. The need now is instruction that cannot be supplied by the institute. The state of New York (and also each of the other states), should begin at once to establish county normal training schools. In July and August all who want to enter on teaching should be put into a preparatory class—to obtain a Third Grade certificate if found competent, after six or eight weeks of instruction; those who hold a Third, Second, and First Grade certificates respectively to go into the Third, Second, and First classes; a three or four years' course parallel with that of the normal school to be fixed upon; when this is completed the life diploma to be given.

The state of Minnesota has made a splendid beginning under state superintendent D. L. Kiehle (a graduate of the Albany normal school) by the opening of state summer schools—which correspond with the idea above expressed. Let all the states take up the idea of giving normal instruction to the First, Second, and Third Grades in the counties in which they reside; but two or even three counties could unite in this matter.

A Review of the American School System.

[From the "Public School System of the United States."]

The number of classes into which our schools may be divided is, in my opinion, three. They are as follows:

In the first class I place the schools characterized by the features that I designated in one of the introductory chapters as antiquated—that is, the purely mechanical schools, the schools that aim to do little, if anything, beyond crowding the memory of the child with a certain number of cut-and-dried facts.

Among the schools of this order that I visited are those of Baltimore, Buffalo, Cincinnati, New York, Worcester (Mass.), Milwaukee, St. Louis, Chicago, the Boston primary schools, and a few others. In Peoria, Ill., I visited only three schools. In one of them I found the spirit good. The other two, however, were distinctly of this order, the discipline being similar to that found in the schools of St. Louis, which, in my opinion, are the most barbarous schools in the country. In Brooklyn the conditions are decidedly unfavorable, and, although I have not examined them closely, I feel at liberty, from what I have seen and heard of them, to inform those interested in the schools of that city that I have every reason to believe that they also belong to this class. Although the schools of the cities I have just mentioned differ to a considerable extent in regard to details, they do not vary much, in my opinion, in their general excellence. In all of them the vast majority of the teachers lack in professional spirit, and the instruction, regardless of subject, is in the main purely mechanical.

Although the schools of the second and third classes differ so widely in certain particulars that the latter may justly be regarded as having reached a higher stage of development than the former, they nevertheless have so many features in common that they may be most profitably discussed together. Besides, their points of difference will be more clearly brought out by a method of comparison.

Among the features common to the typical schools of these two classes are, first, the aim to develop the child in all his faculties instead of simply crowding his memory with facts; secondly, the endeavor on the part of the teachers to render the instruction thoughtful and the work interesting by conforming their methods to the laws of mental development; thirdly, the excellent spirit of the teachers and the kindly and considerate treatment of the children; and, fourthly, the enthusiasm and the progressive character of the teachers, and the constant striving on their part to increase their professional strength. In most of the schools of both the second and the third class, the secret of their success is found to be the fact that the supervision partakes largely of the nature of guidance, inspiration, and instruction rather than of the nature of inspection.

The schools of the second and third classes differ, however, in this all-important element—namely, that in the second class of schools although an attempt is made to teach scientifically, yet each branch of knowledge is still taught in large part independently of all others, while in the third class of schools the walls between the various branches, to a considerable extent, disappear, an attempt being made to teach the subjects in their natural relations to each other. In the latter class of schools, the mind is no longer regarded as consisting of a number of independent compartments—one for penmanship, a second for reading, a third for arithmetic, a a fourth for geography, etc.; but the ideas gained regardless of subject are led to support each other, and they become clearer by being seen in the light of each other. In other words, the schools of the third class are conducted throughout on the principal of unification, while in the second class of schools unification is scarcely attempted in the primary grades. While in most of our schools several hours are devoted daily to the independent study of language in its various phases,—namely, reading, penmanship, spelling, and composition,—in the schools conducted upon the principle of unification, language is regarded simply as a means of expression and not as a thing apart from ideas. Instruction in almost every branch now partakes of the nature of a language-lesson, the child being led to learn the various phases of language in large part incidentally while acquiring and expressing ideas. From the start an attempt is made to devote most of the time either to gaining ideas or to rendering ideas more clear by expressing them in written language as well as with the pencil, the brush, and other tools.

In such schools the pupils read for the purpose of gaining thoughts; but while gaining ideas from the written or the printed page, they are learning how to read. They write for the purpose of rendering more clear the ideas gained during the lessons in science, geography, history, and literature; but while thus rendering their ideas more clear, they learn spelling, penmanship, the construction of sentences, and how to write compositions. The immediate use of these departments of languages being thus seen by the child, even spelling and penmanship become interesting and lose their purely mechanical nature, and school life is, from the beginning, made fascinating. And, strange as it may seem, it is nevertheless true that the results in reading and in the expression of ideas in writing are, at least in the primary grades, by far the best in those schools where language in all its phases is taught incidentally, and poorest in the schools that devote most time to mechanical reading and writing.

The difference between the schools of the second and those of the third class is, however, much more marked in the primary than it is in the grammar grades, for the reason that unification has to a certain extent been carried out in the better grammar-schools of all our cities, while in the grammar grades of the third class of schools it has not yet reached a stage of development as high as that attained in the primary grades of this class of schools. It is not peculiar to the grammar grades of the third class of schools that the pupils are directed to write compositions on the subjects they have studied, or to combine history with geography, drawing with botany, and so on. This is common to the best grammar-schools of nearly all our cities. The grammar-schools of the second class, in particular, do not vary much from those of the third class.

In the primary grades, the difference between the schools of the second and those of the third class is very marked. Although in the schools of the second class reading is to a certain extent made interesting and arithmetic is taught thoughtfully, nevertheless the energies of the teacher are concentrated mainly on teaching the child to read and to cipher, little being done to lead him to acquire ideas. In the schools of the second class, therefore, the work still centers largely around words and figures. In the third class of schools, however, the work from the beginning centers almost entirely around ideas. Further, when the pupils are led immediately after entering school to acquire ideas, an opportunity is given—as I pointed out in detail in previous chapters, and particularly in the preceding one—to render the busy work thoughtful and interesting from the start. In the character of the busy-work the schools of the third class are far superior to those of the second class. In the schools of the second class the busy-work is still largely mechanical, laborious, uninteresting, and of little educational value. Consequently, the primary schools of the third class are much more interesting to the child, they are much more endowed with life, and they are far more educational than those of the second class.

The typical schools of the second class, like those of the first class, vary considerably in regard to the details of the work; but they do not, in my opinion, differ appreciably in their general degree of excellence, when all things are considered.

The cities whose schools may be considered, in my opinion, as typical of the second class of schools as above described, are the following: Washington, D. C.; Yonkers, N. Y.; Springfield, Mass.; Jackson and Ionia, Mich.; Quincy and Brookline, Mass.; and others. In

the schools of Washington, D. C., there is a complete system of manual training that does not skip a link from the kindergarten to the highest class of the high school, and many of the features of this work are excellent. In Quincy and Brookline, Mass., more has been done with the natural sciences than in the other schools of this class. In Springfield, the primary arithmetic is very interesting and thoughtful, and throughout the schools a feature has been made of the scientific teaching of geography. The schools of Ionia, Mich., are peculiar in so far as they are conducted on the departmental plan, each teacher instructing the children in only one subject. In Yonkers, N. Y., and in Jackson, Mich., I found the spirit excellent and the teachers earnest, but the curriculum rather narrow.

The schools that I have just mentioned have reached a distinctive stamp of a comparatively high order for the reason that they have been for some time laboring under very favorable conditions. They have for a number of years been well supervised and in large part free from politics. In a large number of the cities that I visited I found the schools striving to break away from the old-fashioned methods and to accomplish what the typical schools of the second class have already accomplished. They have, however, for numerous reasons not yet reached the standard of the schools of the second class, being still in a transitional stage.

In Philadelphia, for example, the superintendents have for many years been endeavoring to raise the standard of the schools, but their efforts have as yet met with but little success. because the schools are practically controlled by ward politicians who are doing all in their power to use the schools for their own selfish ends. The schools of Cleveland, Ohio, were in former years in good condition, but have since been ruined by the politicians. Last year a complete reorganization of the school system of Cleveland was effected. It is not improbable that under Judge A. S. Draper, who was appointed their superintendent in 1892, these schools will regain their former glory. The schools of Detroit appear to be laboring under the same difficulties as those of Cleveland. Detroit's training school for teachers, however, appeared to me to be an excellent school. The schools of Davenport, Iowa, may be said to have crystallized on a lower plane than that of the typical schools of the second class. While in Davenport the methods are not entirely unscientific, the pupils are treated with undue rigidity and the spirit is not good. These schools appear to be suffering from a degree of conservatism that is altogether out of harmony with the progressive spirit of the West. Next, there are a number of cities whose schools, owing to the excellence of recently appointed superintendents, are destined soon to reach a much higher than their present standard. Among these are the schools of Des Moines, Iowa; Lansing, Mich.; and Moline, Ill. The spirit in these schools is excellent, and more scientific methods will be sure to follow. The schools of some cities never reach a distinctive character, for the reason that they are constantly changing their superintendents.

Besides the cities I have named, I visited a number that I do not feel at liberty to classify because I did not follow them in all their lines of work. I was attracted to some of them by special lines of work, and I visited others in the hope of finding hidden treasures. I visited Toronto, Canada, for the purpose of observing the reading, of which I had heard so much. Mr. Hughes, inspector (superintendent) of schools of that city, has given much attention to phonics. The results in reading as well as in penmanship in the lower primary grades are indeed remarkable. I found many of the children at the end of the fourth or fifth month of school life able to read almost any new word without assistance, and to write from dictation, correctly and very rapidly, even words of several syllables. The penmanship of many of these little children is as good as that of the average adult. In Toronto the cheerfulness of the class-rooms is almost without a parallel.

Now, the third class of schools. Among the thirty-six cities that I visited, I found only four whose schools were conducted upon the principle of unification. I have described them all more or less in detail in previous chapters. These cities are Indianapolis, Minneapolis, St. Paul, and La Porte (Indiana). I found this principle carried out, however, in several normal schools. The schools of Indianapolis, Minneapolis, and La Porte have long been free from politics, and in all these cities the superintendents have, for a number of years, been doing much toward instructing, and inspiring their teachers. In St. Paul, on the other hand, the conditions for the development of good schools have only recently become favorable, so that they are not yet entirely free from the relics of an antiquated system. I may here add that I found the grammar schools of Boston, taken all in all, to be among the best in the country.

While it is not difficult to discover to which of the three broad classes the schools of any one city belong, it is not so easy to make the finer distinctions—that is, to judge of the difference in the degree of excellence of the typical schools of a particular class. Such distinctions can be made only by a large number of tests in many directions. As such fine distinctions were, however, beyond the scope of the present work, I decided to defer them to some future time.

As I have pointed out in this chapter, the general educational spirit of the country is progressive, the schools of a large number of our cities are now laboring in the right direction. But we must never forget that in the United States each community conducts its schools independently, so that the favorable condition of the schools of one locality reflects absolutely no credit on those who manage the schools of another locality. In closing, I will once more call attention to the fact that it is the duty of the public to lend all possible encouragement to those who are striving in the right direction. On the other hand, it is the duty of all parents to take active steps toward crushing school officials who have fallen so low as to sell, for their own profit, not only the happiness of the little ones intrusted to their care while in the school, but also their opportunity to become developed into sound men and women, intellectually, morally, and physically.

A Device in Discipline.

By R. L. M.

Students are made to feel that they are perfectly free in the school-room as long as they are busy and *disturb no one* else. If the disorder becomes so great as to interfere with the work of any one or of any class, the words "No whispering" are printed neatly on the board in sight of all. Absolute quiet is rigidly enforced while these words remain on the board, generally about one hour. And what a strain on both teacher and student? It is taken by all as a punishment for not regarding the rights of others as they should, and each one silently resolves to control himself next time. Then the words "No whispering" are erased. I print, instead "Govern yourselves." Whenever they failed to do this properly, the privilege is taken away. Many have learned to govern themselves. Others are slow in learning it. A few never will, and other punishment must be resorted to.

In a recent address, President Eliot, of Harvard, dwelt on the idea that the unnoticed influences in the education of the young often do much to mold character. "There are," he said, "bits of poetry in my mind I learned in infancy, which have stood by me in keeping me true to my ideas of duty and life. Rather than lose these I would have missed all the sermons I ever heard."

Let the child play, let wisdom be forced upon him only at intervals, and with a laughing face.—*Fenelon.*

The School Room.

MAR. 17.—PEOPLE AND DOING.
MAR. 24.—LANGUAGE, THINGS, AND ETHICS.
MAR. 31.—NUMBER, SELF, AND EARTH.
APRIL 7.—PRIMARY.

Lessons in History.

CENTURY XIX.

The teacher will construct a chart like that given below and suspend it before the class; they will copy it (before and after class-time) and he will talk upon it; they will write on topics assigned and read them at class sessions; then each pupil will give a "talk" on the century. The skeleton of the talk will be something like this:

This century is remarkable for seven things: (1) The doings of Napoleon. (2) Reform in Parliament. (3) The revolutions of 1848. (4) The formation of Italy. (5) War of the Secession. (6) War between France and Germany. (7) The Railway and Telegraph Systems.

Napoleon became first consul, then emperor. He fought several battles just at the close of the last century in Italy, Austria, and Egypt; then Austria again at Austerlitz. He was a wonderful man, but was finally overcome at Waterloo and banished to St. Helena.

The glorious revolution of 1688 made parliament the supreme power in England; but still the people did not really elect the House of Commons; in 1832 a law was passed extending the right of suffrage and causing other reforms. In 1867, 1884, other laws were passed of a similar nature.

The year 1848 brought many revolutions; France became a republic again for three years, then an empire under Louis Napoleon; this man was beaten by the Germans and in 1871 a new republic was formed. In Prussia a constitutional government was formed. There was an effort to free Hungary, but it failed. Italy tried to obtain a union of her states, but Louis Napoleon sent troops to stop them.

But in 1859 the French aided the Italians, and Sardina, Tuscany, Lombardy, and some other states were made the germ of a kingdom of Italy; then Sicily, and Naples were added; then Venice; then Rome became the capital in 1871.

In America a number of the Southern states claimed they could secede and fired on a ship sent by the United States to Charleston; this began a war which lasted from 1861 to 1865. The seceders were beaten and slavery was abolished.

War broke out between Prussia and France and Louis Napoleon was beaten; the Germans took Paris; and demanded a great sum of money and Alsace and Lorraine. Prussia became an empire, for the success against the French caused many of the states to join her.

From 1830 to 1840 was a period denoting a new epoch. The invention of a steam engine led to ocean steam navigation to railroads and telegraphs. Also the invention of machinery in all manufactures and industries. More articles can now be made in a day than were made in 100 days before the invention of the steam engine.

DEATHS OF EMINENT MEN.

Kant, 04; Schiller, 05; William Pitt, 06; Watt, 19; Byron, 24; Richter, 25; Davy, 29; LaPlace, 27; Geo. Cuvier, 32; Goethe, 32; Humboldt, 59; Clay, 52; Webster, 52; Dickens, 70; Wordworth, 50. The others are Adams, Jefferson, De Stael, Beethoven, Guizot, Thackeray, Daguerre, Murat, Wieland.

XIX. Century.

	EUROPEAN.		AMERICAN.
1801	Bombardment of Copenhagen.		
03	England against France--14.	1803	Louisiana sold to United States.
04	Napoleon Emperor.		
05	Battle of Austerlitz.		
05	Battle of Trafalgar.		
07	England and United States prohibit slave trade.	07	Fulton's first Steamboat.
10	Napoleon weds Maria Louisa.		
12	Moscow burnt.	12	War with England.
		14	Peace made at Ghent.
14	Bonaparte to Elba.	14	Washington burnt.
		15	Battle at New Orleans.
15	Battle of Waterloo.		
		20	Missouri Compromise.
21	Greek Revolt.		
30	Greek Independence.		
30	Three days revolution in Paris.		
32	Parliamentary Reform.	32	Nullification attempted.
39	Opium War with China.		
44	First Morse Telegraph.		
		45	War with Mexico—48.
48	Third French Revolution.		
53	Crimean War—56.		
		54	Repeal of Missouri Compromise.
59	France *vs.* Austria—Magenta and Solferino.		
60	Garibaldi overthrows Naples.		
61	Kingdom of Italy.	61	War of Secession—65.
61	French in Mexico—67.		
		62	Monitor and Merrimac.
		62	Battle of Antietam.
		63	Battle of Gettysburg.
		65	Richmond taken.
		65	Slavery abolished.
66	Prussia *vs.* Austria.		
70	Prussia *vs.* France—71.	70	Fifteenth Amendment.
		71	Chicago Fire.
		72	Geneva Arbitration.
76	Servian Revolt.		
77	Russia *vs.* Turkey.		

Queen Elizabeth.

OUTLINE STUDY FOR MARCH.

By LIZZIE M. HADLEY.

Elizabeth Tudor. Birth at Greenwich, September 7, 1533.

Ancestry: Grand-daughter of Henry VII. and Elizabeth of York; parents, Henry VIII. and Anne Boleyn.

Looked upon as heir to the throne; grand christening ceremony.

Character of Henry VIII. and Anne Boleyn.

Influence of such parents; inherited traits; love of popularity, courage, self-confidence, self-will, and violent temper from her father; self-indulgent part of her nature, coquettishness, levity, and love of fine clothes from her mother.

Fickleness of Henry; execution of Anne Boleyn, May 19, 1536.

Neglect of Elizabeth; without proper clothing and food.

Early marriage of Henry with Jane Seymour. Birth of Edward VI. and death of the queen.

Christening of Edward, the first public ceremony in which Elizabeth took part. Studious lives of Mary, Elizabeth, and Edward; their affection for each other; grief of Edward and Elizabeth at the death of Henry in 1547.

Accession of Edward to the throne; influence upon Elizabeth; fondness for Edward.

Personal appearance: accomplishments; fond of music and literature; little knowledge of or taste for art.

Roger Ascham's opinion of her intellect; reads and writes Latin, Greek, French, and Italian. Retired life.

Death of Edward in 1553; effect upon the life of Elizabeth.

Coronation of Mary.

Dissatisfaction of the people; Elizabeth accused of being implicated in a plot to remove her; imprisonment in the Tower.

Influence of Elizabeth upon the literature of the day; the era of great men: Shakespeare, Bacon, Hooker, Sidney, Spenser, Raleigh, etc.; the dawn of commerce, discovery, and enterprise, the Reformation an established fact.

Read account in "Child's History of England," "Girl's Book of Famous Queens."

Life during this period. Read the poem "In the Tower, A.D., 1554," by Susan Coolidge in *St Nicholas* for February, 1881.

Removed to Woodstock; close watch upon all her movements.

Marriage of Mary and Philip II. of Spain; urged to marry the Duke of Savoy; refusal; release from prison; life at Hatfield House.

Death of Mary; coronation of Elizabeth January 15, 1558.

Rupture with the Pope; intolerance of all opinions contrary to her own; takes the title of "Head of the Church;" unsettled religious state of the country.

Refuses Philip II. of Spain and incurs his enmity; contest with Spain and destruction of the Spanish Armada.

Claim of Mary Queen of Scots to the throne; imprisonment of Mary; execution after nineteen years of confinement; effect of this execution upon Elizabeth.

Character of Elizabeth, versatile and many-sided; a mixture of treachery, duplicity, and weakness united to many great and heroic traits.

Government; surrounded by wise statesmen; popular among the people; country rich and prosperous; last days; names son of Mary Queen of Scots, James of Scotland, as her successor.

Death on the morning of March 24, 1603, in the forty-fifth year of her reign.

Flowers as Emblems.

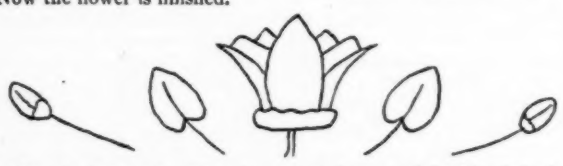
By Anna C. McDonald.

What flower do you see on the board? Yes; it does look like one kind of lily. How many of you have seen the water-lily? This flower is very much like it, but grows far away in Egypt, and is called the lotus.

Many, many hundreds of years ago the people living in Egypt loved this flower and thought it so beautiful that they used it in ornamenting all their fine buildings.

What flower is this around the cover of this book? "The lotus." Yes. Artists now use this same flower for decorative purposes.

Let us see how nicely we can draw the lotus. We will begin with the center. You know how some of the petals of the water-lily curl over, and others in the middle stand up. We must be very careful to get both sides just alike. Now we can make those that curl over. Then just above we can see the tips of other petals. Next we will draw the green cup and the stem. Now the flower is finished.



Here is the bud. That is easy to draw, and besides it is the leaf, very much like some leaves you will find in the garden in the summer.

You may write on your slates, *The lotus is the national flower of Egypt.*

You know that all the different countries have flags, and many of them have flowers as emblems. What is *our* national flower? No, it is not the pansy, or golden-rod, or apple blossom. In fact, we have no national flower, though it has been talked of a great deal, and some have chosen one flower and some another.

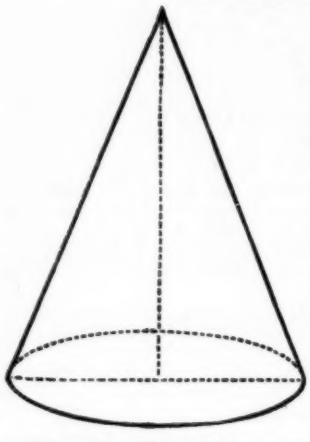
England has the rose for her emblem, France the fleur-de-lys, and Japan the chrysanthemum, while Scotland has the thistle. Is not that queer? Who can think of any reason why she should choose the thistle? "Because the blossom is soft and pretty." No, that is not the reason. It is quite a story, so you may fold your hands while I tell you.

Once on a time a large army came quietly creeping up to a Scotch city by night, thinking they would surprise them while they were asleep, and capture the whole city before they could do anything. But just as they were almost there, a barefooted soldier stepped on a thistle, and it hurt his foot so that he cried out, and woke some soldiers in the city so the people were aroused and all ready for them, and they could not take the city. Was not that a pretty good reason for choosing the thistle?

Now you may finish the lesson by writing all you can remember of what I have told you. Then each one may vote for the flower he thinks would be the best emblem for our country.

Lessons in Drawing.

Work for March.



Copying.

For directions about copying see previous lessons. The object of this part of the work is to train the eye and hand to accuracy. The mental training comes in drawing from objects and designing.

Drawing.

This work for this month will be based upon the cone. The dotted lines represent the axis of the circular plane face, the vertical axis perpendicular to it, and the "invisible edge." It will help pupils to acquire accuracy if they are required to make these dotted lines, especially at first.

Always draw from the *object.*

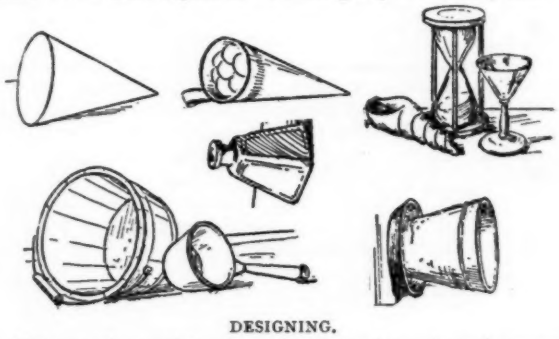
The pupils will be liable to make the ellipse *pointed.* Show them that it must be rounded at the "ends."

Have them complete the outline of objects as they wish it to remain before allowing any erasing.

Sketching.

There are many objects based upon a cone besides those indicated in accompanying sketches, one of which is an ordinary funnel.

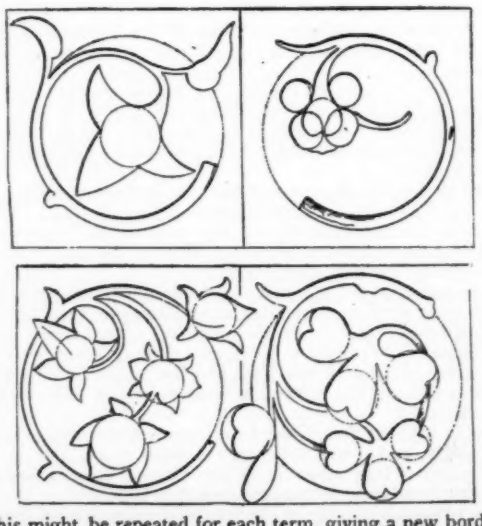
Pupils will be inclined to draw all objects in a vertical position. This is a mistake and they should be required to draw objects in various positions. And if some of the more advanced ones can draw two or more objects in the same group let them try that.



Designing.

This month completes the series of circular units and presents some beautiful designs. The pupils should be led to use these in borders and originate others similar.

Tell the pupils that the *four* who succeed in making the best borders either copying the ones given or original, as the teacher thinks better, will have the privilege of making the same (teacher selecting the one to extend around the room) kind of a border around the top of the blackboard—one pupil for each side of the room.



This might be repeated for each term, giving a new border for each term and encouraging the pupils.

Paper and Cardboard Sloyd. V.

By WALTER J. KENYON, Cook Co. Normal School.

MODEL 17, MATCHBOX.

Material—Leatherette.

The drawing (Fig. XXII.) is too difficult to be *dictated* to primary grades. It is well for the teacher to make a stencil by drawing the figure on tolerably stiff cardboard and cutting it out. From this first one she may readily make a dozen duplicates. The children may mark around these in order to secure the outline, then draw the inner lines from dictation or from the teacher's drawing.

All necessary measurements are marked in Fig. XXII. The small notches along the sides are for the stencil only, serving to locate the ends of the cross lines. The shaded parts are margins for pasting.

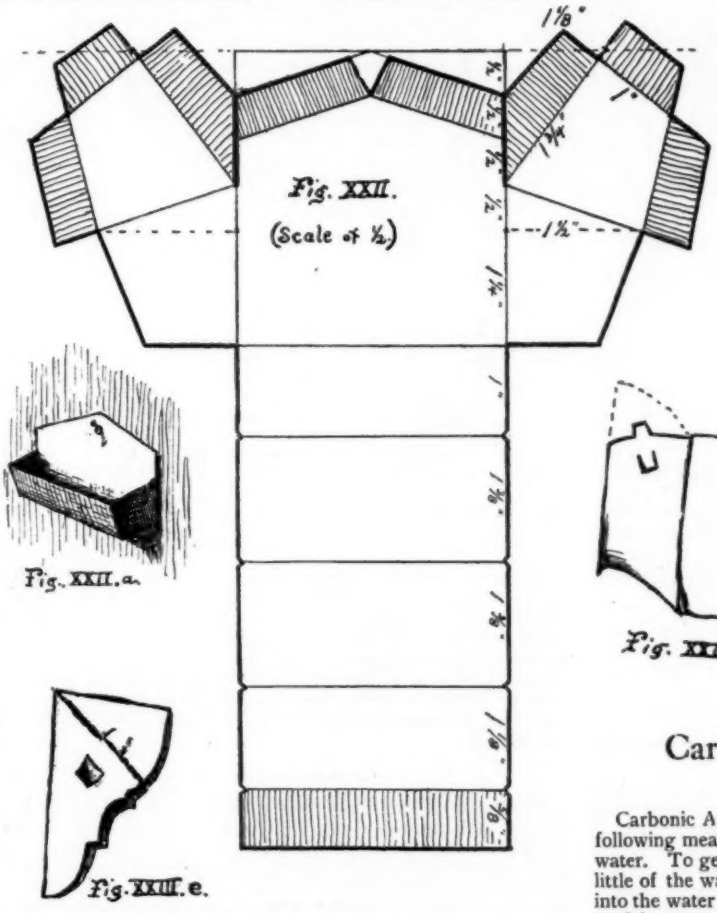


Fig. XXII. a.

Fig. XXIII. e.

In drawing the figure, produce first the main rectangle, 3 × 8¼ inches. Divide it up according to the measurements given. Next prolong the top (3-inch) line, right and left, indefinitely. On this prolonged line set off a space of one and one-eighth inch to the right of the rectangle, as shown. Connect point thus made with the third half-inch point on right edge of rectangle. On this new line, and from the point just named measure off one and three-quarter inches. From the new point thus gained, throw off the one-inch perpendicular toward the right. Now place a point one inch and a half directly to the right of the fourth half-inch point on the right edge of the rectangle. Connect the point thus made with the right end of the one inch line above and also with the one below. Now add the margins (half-inch margins) as shown. This completes the right wing. Draw the left wing likewise.

Having cut out the stencil, trace the figure from it on a piece of waste paper. Cut this and fold it until the parts come together in the form shown in Fig. XXII., *a*.

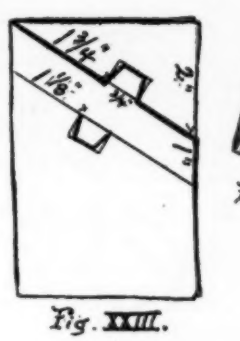
So much for practice. The real model is best made of imitation leather (leatherette) or similar goods. Before the margins, or laps, are glued over onto the back, a backing of cardboard should be glued in, to give the model requisite stiffness.

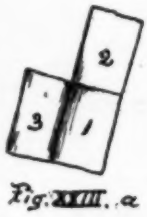
Finally, punch a hole for hanging, about half an inch below the apex of the back.

MODEL 18, CORNER BOOK-MARK.

Material.—Any stiff, ornamental paper. Whatman's water color paper answers nicely

Take a sheet six by nine inches. Fold it on each diameter, then tear out the upper left quarter. (See Fig. XXIII., *a*.) Fold again, 2 over 1 and 3 over 2. Thus folded, draw on 3 as shown in Fig. XXIII. The object is to secure those two little tongues. Now cut away the paper about the upper tongue and cut free three sides of the lower tongue. (See XXIII. *b*.) Slits to receive these tongues must now be cut in the next sheet below. These can be located by pricking through with a pin at the roots of the tongues. These cut, the tongues are inserted as in Fig. XXIII. *c*. Now if the pupils are unable to make curves nicely, the model may be finished by a diagonal cut as in Fig. XXIII. *d*. Otherwise it is prettier in Fig. XXIII. *e*. It may be made prettier still by drawing in water colors, or, if very neatly done in ink, a flower, or a simple landscape, on the smooth side of the book-mark.





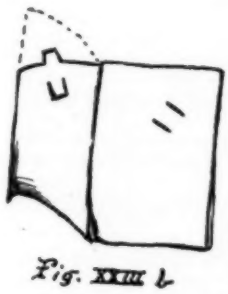


Fig. XXIII b

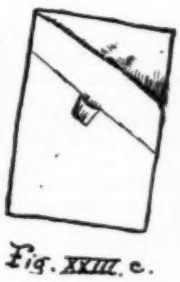


Fig. XXIII c.

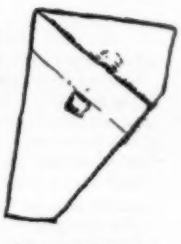


Fig. XXIII d.

Carbonic Acid.—Hydrogen.

By FRANK O. PAYNE.

Carbonic Acid Gas. I. Sources and preparation. Any of the following means are good: Figure I. is a common flask of vichy water. To generate the gas press on the stop-cock. Catching a little of the water in a bottle blow through a glass tube or straw into the water in the bottle. Enough carbonic acid will be liberated for several experiments. If vichy water is not handy use the means illustrated by Figure II., *i. e.*, place a candle in a wide mouthed jar, and let it burn until it goes out. The jar will contain carbonic acid gas. Another way is to take washing soda or salaratus and add vinegar or any other acid. Marble and muriatic acid are used often in the same way. (Figure III.) This gas, unlike oxygen, is collected by dry downward displacement—*i. e.*, letting the gas simply run over through the delivery tube, *T*, until the necessary number of bottles are filled. Yeast and sweetened water may be put in the flask, Figure III., and carbonic acid will come off as a product of fermentation. I would advise a teacher to use all, or as many, of these methods as possible, as it is very instructive.

II. Experiments. Arrange a trough, Figure IV., placing bits of candle as in figure.

1. Take a jar, *J*, full of the gas and tip it. The gas being heavier than air will run down putting out the candles.

2. Burning matches, sticks, etc., when plunged into the gas go out.

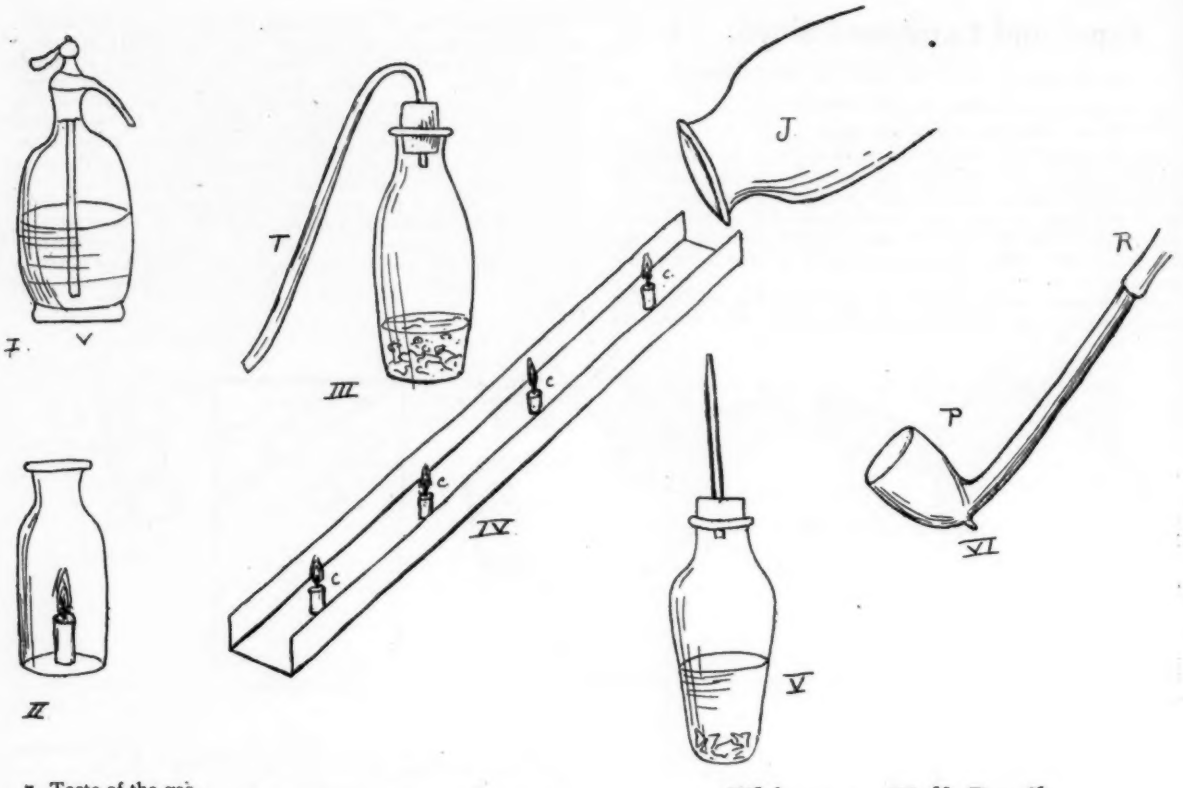
3. Make a cup of paper about as large as will go into the bottle easily. Fasten to it a wire for a handle, and dip it into the gas. The gas may thus be all dipped out like water.

4. Fill bottles or tumblers partly full and then blow small soap bubbles with the end of the pipe-stem. Let these bubbles fall into the gas. Note the result. See the bubbles float! Why? Why do the bubbles grow larger?

Endosmoses.

5. Pour a little lime water into a bottle of gas. What result?

6. Breathe through a tube into lime water. What result? What inference?



7. Taste of the gas.

8. Pour in a few drops of litmus or purple cabbage solution. What result?

9. Set fire to some magnesium foil. It burns brightly. While burning thrust it into a jar of gas. See the minute particles of charcoal in the jar.

III. Facts. *Carbonic acid is made by fermentation, combustion, decomposition of carbonates, etc.*

It is heavier than air.

It turns lime water white.

It tastes sour.

It turns litmus red.

It consists of carbon and oxygen.

IV. Equations. $C+O_2=CO_2$, combustion.

$CO_2—O_2=C_2$ This is what happens when the magnesium burns.

Hydrogen.—Fit up bottle with a delivery tube, *T*, Figure III. Placing some bits of zinc in the bottle and covering with weak sulphuric acid hydrogen will come off rapidly. Be careful not to have the acid too strong, else no gas will be disengaged When the gas has come off for some time catch several bottles and invert them to prevent escape. Touch a match to one. It burns. Does it support combustion, *i. e.*, will a stick burn in it? Fill a bottle half full of air or oxygen and the rest with hydrogen. Touch a match. Note the result. Attach the pipe, *P*, Figure VI., to the tube, *T*, by means of the rubber connection, *R*. Dip in soap suds and thus fill bubbles with hydrogen. See how much faster they expand and rise. *Hydrogen is very light.*

Bring a candle near a hydrogen bubble. What happens?

Remove the cork and delivery tube from Figure III., and fit a cork and straight tube drawn out to a fine tube, as in Figure V. When you are *sure* that all air is out of the bottle and hydrogen fills the upper part, touch a match to it. Always hold a card between yourself and the bottle, as in case of an explosion the face would be better protected. When the hydrogen has been coming off for some time there is no danger. Now take tubes of various lengths and diameters, and slide them over the burning jet. The flame will tremble and sing, often giving a musical sound as loud as a whistle. Stop the upper end of the tube. What effect on the tone? Compare tubes of different material, diameter, length, etc. Note the color of the flame. Is it hot? Hold in it bits of zinc, iron, steel, copper, etc.

Hold a cold saucer in the flame for an instant, Note the presence of water on it. Whence came the water? Equations: (1) $Zn+H_2SO_4=H_2+ZnSO_4$ and (2) $H_2+O=H_2O$, water. Water, then, is an oxide of hydrogen. It is an ash, because it was produced by burning.

NOTE.—The greatest care should always be observed in working with chemicals. It is the foolhardy person who ventures carelessly. The best chemists observe the greatest caution in experiment.

Things to Tell Pupils.

By WILL SCOTT.

ZIGZAG LIGHTNING.

There is no zigzag lightning; at least, none that bears the least resemblance to that pictured and described in text-books. This delusion has been dispelled by the camera. Hundreds of pictures of lightning have been taken, and the negatives show uniformly that its path is not zig-zag. Lightning moves in the line of the least resistance, or rather in the line of the best conductor; hence its path is never straight, the figure described being about the same as that made by a stream of water running down a hillside.

CARBONIC ACID GAS.

It is generally supposed that carbonic acid gas (CO_2) is a deadly poison. Most of the text-books on physiology say so, but there is no greater mistake. This gas, which is exhaled from the lungs and which feeds plant life, is as harmless as pure water. Like water it causes death sometimes by excluding oxygen from the lungs. The person who drowns or the person who breathes too much "foul" air, dies for the want of oxygen. Carbonic acid gas acts upon the lungs just as water does. There is another oxide of carbon (CO), however, that is poisonous and dangerous. This gas is given off from charcoal fires and often produces death. Lamps may produce it, too, hence it is best not to keep a burning lamp in a sleeping room.

HOW SOME GREAT MEN DIED.

The world has not been fit to live in very long. The principal business of the ancients was war and murder. Few men of antiquity whose names are familiar to us either lived happy lives or died natural deaths. Socrates was poisoned with hemlock. Brutus, who assassinated Cæsar, committed suicide. Cassius and Cato both took their own lives. Cicero was assassinated by order of Mark Antony, and Antony, the most depraved of Romans (excepting Nero), ended his own life with his sword after the battle of Actium, 30 B. C. A hundred years later, Nero, following the example of his predecessor, committed suicide in the 31st year of his life. After fifteen centuries had rolled by and paganism had succumbed to Christianity, Rome had advanced so little that Bruno, the philosopher, was burned at the stake.

Demosthenes, the greatest orator of antiquity, took poison to prevent falling into the hands of the enemy, and Alexander the Great, who is said to have wept because there were no more worlds to conquer, died of delirium tremens after a debauch of several days.

Obviously we have passed a good many mile-posts on the highway of civilization. The world is getting better.

Editorial Notes.

It is now almost certain that the N. E. A. meeting will be held at Asbury Park, N. J. A decision will be reached within a few days. THE JOURNAL will keep its readers informed.

If the practice of ordering off teachers' "bangs," started in an Eastern school, comes into fashion, the school ma'ams should get together and form a teachers' bang protection society. All teachers *feminini generis* who have high foreheads,—and the majority have—will immediately join the T. B. P. S.

The Progressive School published at Alliance has decided to stop. It was a good paper, but like many other educational journals did not receive sufficient support to keep life in it. It managed to keep running for four years. Prof. B. F. Yauney, formerly of Mt. Union college, was its editor. We are glad to hear that he will resume teaching. There his efforts will be better rewarded than in educational journalism.

The New York *Herald* is an excellent paper and has done much service in the cause of education by enlisting the interest of the public in the schools, but just now it has undertaken the publication of a series of portraits and biographies that, we sincerely hope, will be discontinued as soon as possible. The subjects are pupils in the city schools who have excelled in studies. Not only is it "bad practice," as Ibbot says, "to praise anyone too highly for doing that which every virtuously disposed mind ought to do continually," but it breeds also envy and other poisons, prigs and other social nonentities that the schools are trying, or should try, to suppress.

Prof. J. H. Hyslop states a truth in the February *Forum*, that cannot be too often held up to the people. He writes: "If we are to have an educational system which shall boast of its moral character and influence, it must be organized on a basis qualified to produce that result. Men must be employed who, like Dr. Thomas Arnold of Rugby, can give themselves up to molding the character of students, and not to mere personal aggrandizement in science, literature, art, and philosophy. But not in our religious institutions is such a policy thought of, much less in the public schools. They are all organized upon a mercantile and economic basis. Appointments, promotions and salaries are all regulated by a policy that confers premiums either upon purely intellectual capacities or upon all those questionable resources of power and influence which a tender conscience despises. No attempt is made to discover his devotion to the development of men, and then to place him where he need have no concern regarding his position and responsibilities. The moralization of the student must begin by the moralization of the system of instruction, and this can be accomplished only by abandoning the mercantile and economic method for a moral one. The competition in education should not be for numbers of students, as now, nor for merely great scholars as teachers, but also for those who know how to win the affections of students and to command their reverence for moral qualities."

To Friends of Education.

The desire of the editors of THE SCHOOL JOURNAL (now in its 24th year) is to make it represent the educational world, as far as possible. The absence of interest in each other has been a great barrier hitherto, but there is a more evident effort to have teaching rank as a profession, and teachers have become more alive to the importance of having educational movements recorded in a paper having the large circulation THE JOURNAL has gained.

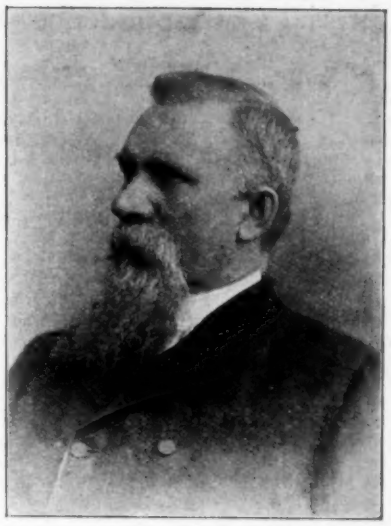
The editors, therefore, call upon teachers everywhere to assist in the work of recording the more prominent events affecting education. This will certainly react beneficially on the general cause of educational progress.

They ask that you send them notice (among others) of the following:

Appointments of presidents, superintendents, and principals.
Notices of deaths of prominent educators, with some account of their work.
Erection of new buildings, cost, plans, photographs, etc.
Conventions—place and time; also of the more important transactions.
Addresses made by educators.
Plans; courses of study, etc.

In many cases a clipping from a newspaper sent us will contain the information we want.

Now all this will, together with the publication, demand labor, it is true, but all men and women who are in earnest to raise their work higher in public estimation will cheerfully give it, not because there is money made by so doing, but because such facts ought to be recorded. We ask, therefore, your hearty co-operation in the work above indicated. Editors of THE SCHOOL JOURNAL.



James Alexander McLellan, M. A., LL.D.

Principal McLellan, of the Ontario School of Pedagogy, Toronto, was born at Shubenacadie, Nova Scotia, in 1832. When only fifteen years old he taught a country school. In 1849 he was graduated from the Toronto normal school. Eight years later while teaching, he began to prepare himself for the university of Toronto, winning at matriculation first class honors in mathematics and scholarships in general proficiency. During his university career he obtained first-class honors and scholarships, chiefly in mathematics, metaphysics, and English, and was the recipient of two medals at graduation—this while engaged in teaching a high school. He obtained the degree M. A., in 1863, LL.B., in 1873, and LL.D., in 1874. He was principal of the Yarmouth, N. S., seminary, 1864-9; appointed mathematical master in Upper Canada college, Toronto, in 1869; under Dr. Ryerson appointed high school inspector by the education department in 1871 and served many years on the advisory board of the department of education.

In these posts, Dr. McLellan performed a large amount of hard work and, as the ablest of departmental experts, did much to advance educational interests in Ontario. In 1883 he was made director of normal schools and subsequently director of teachers' institutes, in which position he has rendered high service in quickening the professional mind, in broadening the field of study, and molding public opinion on national education. Dr. McLellan's great gifts as a mathematician are well known and appreciated throughout Canada, and his many valuable works on his favorite subject have made his name noted also in the United States and in the Old World.

In 1889 Dr. McLellan was appointed principal of the Ontario School of Pedagogy, a governmental institution for the professional training of high school teachers, inspectors, etc. This school completes the organization of the system of teachers training which is a notable feature in the educational system of Ontario. Dr. McLellan's broad ideas on education his thorough acquaintance with modern pedagogics and its related sciences, his energy and enthusiasm for the work peculiarly fit him for the training of the "teachers of teachers."

Besides numerous mathematical works, Dr. McLellan is the author (with Prof. Dewey, of Michigan) of a book on "Applied Psychology; an Introduction to the Principles and Practice of Education." This work has met with warm approval as one of the most important works on educational psychology published in the English language.

Leading Events of the Week.

Russia's Mediterranean squadron will be increased.——The British Radicals become reconciled to Lord Rosebery as premier.——Mr. Gladstone is reported on the road to recovery.——The Wilson bill was reported by the sub-committee to the finance committee of the senate.——The Brazilian revolt was reported ended by the surrender to Admiral da Gama.——The provisional government fears a revolt in favor of Queen Liliuokalani; all the government buildings in Honolulu are guarded.——The U. S. battle ship *Indiana* passed her preliminary test successfully.——The British were defeated in Assam.——Louis Kossuth is probably dying.

EDUCATIONAL FOUNDATIONS is a capital booklet for teachers. In publishing it you are doing a good thing for the teaching profession. WILLIAM NOETLING.

Bloomsburg, Pa.

Editorial Correspondence. III.

St. Augustine.

Very few visitors to Florida pass by the quaint old city of St. Augustine. It is situated on the sea coast about forty miles to the southeast of Jacksonville, and has thus both marine and tropical advantages. There are so many new additions to the city that on a first look one is apt to think its claim to queerness and quaintness has been entirely overrated, but as he looks around, day after day, he is won over and falls in love with things that are wholly unlike his surroundings at home.

I do not prepose to describe the town—that would require quite a volume; I only propose to jot down some of the effects it produces upon the tourist and to point out the causes. It must be borne in mind that one is here on an ancient soil. Ponce de Leon, a companion of Columbus, landed just north of the present site of St. Augustine, April 3, 1512; it was on Palm Sunday (the Pasqua Florida of the Spaniards), and to this the whole peninsula owes its name; he was in search of the elusive "Fountain of Youth." Pedro Menendis, a Spaniard ever to be execrated, came here in 1565; the destruction of as many of the human race as opposed him was his ambition. The building of fortifications, the fitting out of expeditions to maraud and murder began. The Franciscan monks came with him in large numbers and founded a monastery, but this has become barracks for the soldiers stationed here.

After being in the possession of Spain for 300 years, it came into the hands of the United States in 1819, but few Americans came here to live, and so its old character was maintained almost up to the present moment. There are many descendants of the old Spanish families left, and the architecture will for many years impress the tourist as belonging to a medieval age.

If one entered the city in those days it was from the north, and one passed through the "City Gates"—and part of a relic of an enforced system of fortification walls that once surrounded and protected the settlement. These still stand and show the feeling that must have pervaded all breasts here two hundred years ago; that all beside themselves were either friends or enemies, and the world was mostly composed of the latter. Guards were stationed here, and up to 1819, whoever entered the city passed over a drawbridge that was lowered at night; every stranger was obliged to obtain permission from the governor to enter.

One now lands at a handsome modern depot; the shout of hackmen, the waiting omnibuses and carriages, the struggle to get your patronage—all these are familiar; one feels he is still in the land of the free and the home of the brave. He is whirled away along an asphalted pavement for a block or two, and the scene changes; the streets are narrow, the houses stand upon the street line, and balconies are over your heads; walls prevent your seeing what is between the houses. So narrow are the streets that those on the balconies may reach across and shake hands. There are no sidewalks and only room for one vehicle. This difference between the old St. Augustine and the new city arising on its modern limits, with wide streets and with houses set back in yards strikes one forcibly.

In front is the bay; a mile across is an island of sand—St. Anastasia; over its flat surface one can see the white breakers when the wind blows fresh. Along the shore is a fine stone wall; Fort Marion attracts attention, and on it much money was at one time spent, but the United States saw many years ago that if they were to be attacked New York would be the vulnerable point, and not St. Augustine; it would be of no value to an enemy to possess a hundred watering places.

Within a few years Mr. H. M. Flagler has spent a good deal of money here and spent it well, on buildings and railroads. The Ponce de Leon hotel is a structure in the Spanish style of architecture, and it is so nobly built that it seems a pity that it should be desecrated by employing it for the low purposes of a hotel. He has built a church as a memorial to his daughter that is wondrously beautiful also.

But these are not St. Augustine; yet one is glad they exist because they are works of art, and true art is always the source of joy. And no one scorns the poor, low Spanish houses because of these architectural splendors. As one walks these narrow streets, he feels the influence of the strange, invisible Past. He enters somewhat into the life of a people who have no American front yards and wanted none—they have their yards behind their houses and make them as private as any room in the house—who read the poems of Manrique, Aldana, and Lope de Vega; whose race affiliations led them to be wholly interested in the lives of Spanish kings and queens and the governor sent over to squeeze from them the few coins they could contrive to possess. Even when the Spanish flag was taken down and our stars and stripes put in its place there were many who had never heard of the United States.

Even to the time when Florida was admitted into the Union in 1845, St. Augustine seemed to be as Spanish as ever. The people wanted no American visitors; it was difficult to reach the town through the dense forests that fill the space to the St. Johns river.

In 1842 the poet Bryant came here, in 1854 Charles Lanneau; and each wrote sketches that served to draw more travelers. And the tide flowed with increasing force each year. Why did they come? It was not that the buildings were large, they were mean and bare; the streets were crooked the food and surroundings painfully defective, but the floods of sunshine, the blue sky, the soft air, the luminous night skies, the mystery of the sea roaring when lashed by the winds, the expression the inhabitants had given of themselves in their architecture and mode of life, reflections of medieval Europe right here at home—these with the ever-blooming roses, the palms, the tropical foliage, made the little town a place of rest not only, but a place where one could be interested in surroundings intensely different from anything observed before.

A. M. K.

John Van Brunt has decided that graduates of law schools not registered with the Regents, among which are Yale and Harvard, cannot be admitted to the bar of the state of New York.

Student vandals have disfigured the dark gray granite walls of Kent laboratory, Chicago university, which was recently dedicated, by paint, and have hung signs brought from Midway Plaisance on the doors of the dormitory of the female students.

Iowa has come to the front with an appropriation of $40,000 annually for the instruction of competent persons in the science and practice of teaching.

There is a law school for colored students at Louisville, Ky. and several of Louisville's leading white attorneys have consented to deliver lectures. The world moves right along.

The czar of Russia receives no salary from the government. His income of $12,000,000 a year is derived from his personal estates. How many people would be willing to teach school without a salary if their income amounted to several millions of dollars?

The Toronto School of Pedagogy of which Dr. McLellan is the principal, is to be affiliated with the University of Toronto. Degrees in pedagogy will be conferred. Ontario is bound to keep at the head of the column as far as the professionalizing of teaching is concerned.

Among the students at the Sorbonne, Paris, there has been much dissatisfaction since M. Ferdinand Brunetiere, the eminent writer, defeated M. Emil Zola in the contest for a seat in the French academy. Recently some three thousand students marched, shouting and groaning, to a space near M. Brunetiere's lecture room. Repeated cheers were raised for Zola and his school, and as many groans were given for Brunetiere and writers of his tendency. The tumult was so great that M. Brunetiere was obliged to give up his lecture.

The Harrisburg, Pa., *Star Independent* writes:

"One of the most valuable weekly papers for teachers is THE SCHOOL JOURNAL published by E. L. Kellogg & Co., New York. It is edited by A. M. Kellogg, an educator with a national reputation and a writer of practical and pronounced ability. THE JOURNAL for February 10 contains among many other valuable features an interesting article on "The Calligraphic Renaissance." Vertical writing has attracted widespread attention and this article gives information which answers many questions that naturally arise in connection with the discussion of vertical writing, which, by many and the most accomplished penmen, is looked upon more as a fad than really a practical system. This number of the paper contains an elaborate program which can be used in public schools for the proper celebration of Washington's birthday, as Dr. N. C. Schaeffer, superintendent of public instruction, has suggested to the teachers of Pennsylvania, instead of closing the schools on February 22.

Teachers' Association Meetings.

March 16-17—Western Washington Teachers' Association, at Tacoma, Wash.

March 23-24—Central Illinois Teachers' Association, at Normal, Ills.

March 28-31—North Nebraska Teachers' Association, at Columbus, Nebr.

MARCH 27-28-29.—Ontario Educational Association. Thirty-third annual convocation to be held in the Education Department buildings, Toronto. Officers: president, Alexander Steele, M.A., Orangeville; vice-presidents, S. F. Lazier, LL.B., Hamilton; I. J. Birchard, Ph.D., Toronto; A. McMillan, Toronto; T. Kirkland, M.A., Toronto; Arthur Brown, Morrisburg; Miss Laidlaw, London; secretary, Robert W. Doan, Toronto; treasurer, W. J. Hendry, Toronto.

MARCH 29-30.—Wyoming State Teachers' Association, Rawlins.

APRIL 4-6.—Indiana Southern Association, Rockpoint.

APRIL 5-7.—Northern Indiana Teachers' Association. Twelfth Annual Meeting to be held at Frankfort, Ind. For particulars address B. F. Moore, Pres., Frankfort, Ind.; or, Calvin Moore, Chairman Executive Com., South Bend, Ind.

APRIL 5-6-7.—Joint meeting of the Northeastern and Southeastern Kansas Teachers' Associations.

April 5-6—North Western Wisconsin Teachers' Association, Menomonie.

April 6-7—Massachusetts Association of Classical and High School Teachers, at the Boys' Latin School Building, Boston.

May 4-5—Fairfield County Teachers' Association, at Bridgeport, Conn.

JUNE 19-21.—Missouri State Teachers' Association at Pertle Springs, Warrensburg; Pres. Henning W. Prentis, St. Louis, Mo.

June 26-27-28-29—Ohio Teachers' Association, Delaware, Ohio.

JULY 9-10-11.—New York Teachers' Association, Saratoga Springs, N. Y.

JULY 6-13.—National Educational Association, most likely at Asbury Park, N. J.

DEC. 26-27-28.—South Dakota Educational Association, at Huron. Pres., R. S. Gleason, De Smet; Rec. Sec'y, Kate Taubman, Plankinton; Corr. Sec'y, I. F. Nickell, Huron; Treas., Harry L. Bras, Mitchell.

EFFECTS OF THE INTRODUCTION OF KINDERGARTEN CULTURE IN AFRICA.

Pedagogy at Colgate University.

Time was when to be a college graduate was to be prepared, in the popular conception, for the work of a teacher. That condition of affairs, happily, is rapidly passing away. Colleges like St. Lawrence, Hamilton, Syracuse, and others, which supply many teachers as is shown by the number of graduates receiving life certificates from the state superintendent cannot much longer continue to do so if they do not put themselves into shape to offer to their undergradutes opportunites for the scientific study of education. The normal schools do a great and good work, but men are needed in the schools for principals and superintendents who have obtained the breadth of culture supplied by a more liberal training than the great share of normal graduates can have gained before their graduation. This need the colleges and universities must supply or else be untrue to their own best interests and to those of the lower schools.

In June, 1893, Colgate university called Mr. Charles Herbert Thurber from Cornell to become the professor of pedagogy in the college and the principal of Colgate academy, a well known preparatory school. Mr. Thurber came well qualified for his position. He had had experience in teaching in the public schools before his entrance upon a college course. He was graduated from Cornell in 1885, having attained the honor of Phi Beta Kappa. After his graduation he took graduate studies at Cornell, taught German in the Cascadilla school and was also connected with the university in a business capacity. Then for a year he was a graduate student at Haverford college where his great interest in educational matters attracted the notice of the United States Bureau of Education which sent him to Europe for a year in the interests of the government to study education. While abroad he was a student of pedagogy at the Royal Polytechnicum, Dresden.

He is now the managing editor of *The School Review*, the organ of the secondary schools, and a contributor to other educational publications and to *The Youth's Companion*. He is also an assistant editor of the revised edition of Johnson's Encyclopedia.

This year, the course in pedagogy, pursued by quite half of the senior class, has been based upon Compayré's History of Pedagogy and Laurie's Institutes of Education. The members of the class have done considerable work in Colgate academy under the criticism of Professor Thurber; recitations have been conducted by members of the class before the class in the class-room and a number of abstracts of subjects and papers on subjects have been prepared to be presented before the class. Many written tests have been given to ascertain what the men are getting out of the subject, not how much text-book has been committed.

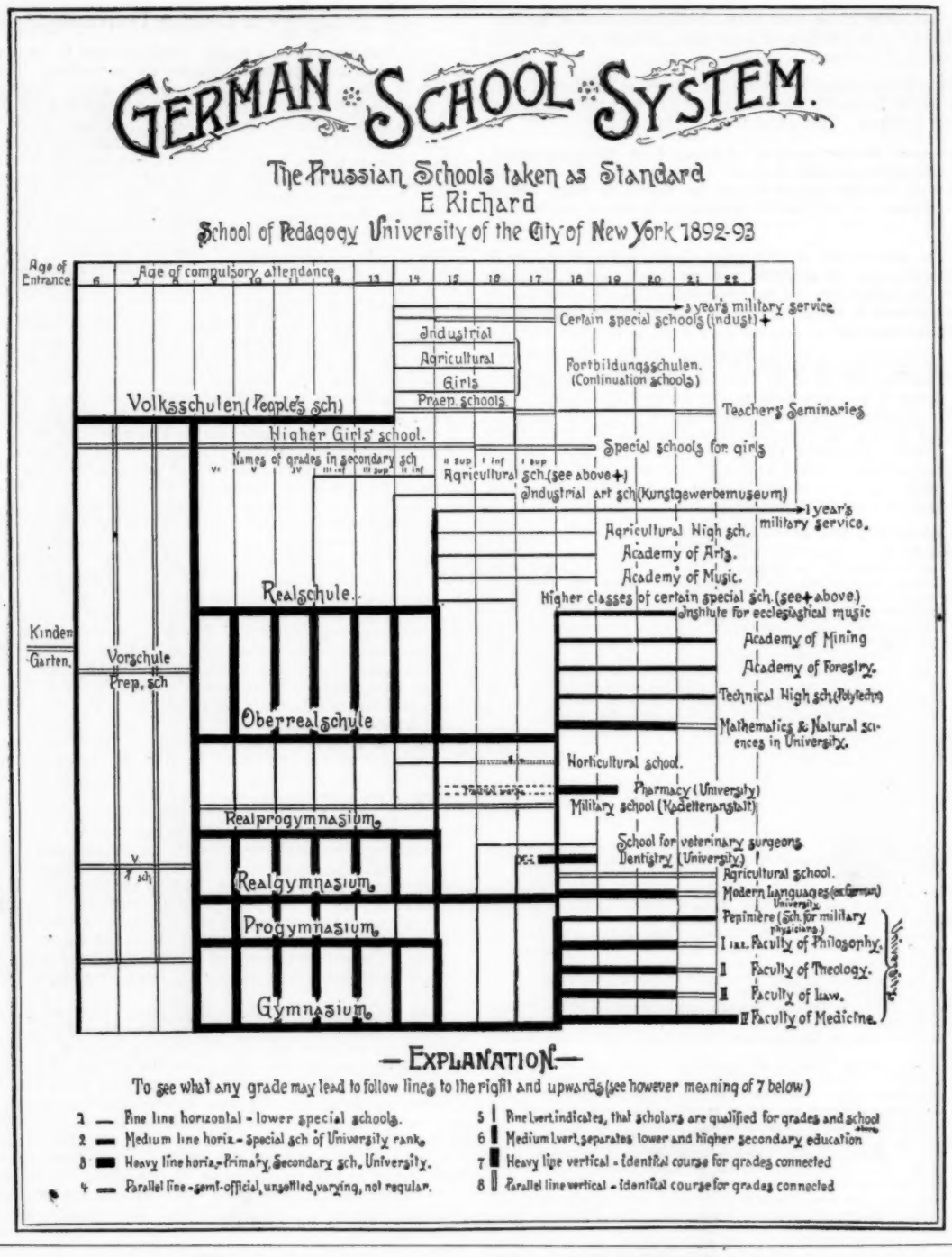
At the opening of the winter term an organization called the Laurie Club was formed "for the study and discussion of the latest pedagogical thought." At each of the meetings held so far about forty persons have been present. Invitations are sent to all the teachers in the community and to others interested in education as well as to a large number about the county. Quite a number of women teachers and of the college and seminary professors have shown their interest by attendance upon the meetings.

The "Committee of Ten" urge upon colleges the duty they have to teachers and schools in their immediate vicinity. If each college will perform that duty faithfully and also give instruction in pedagogy to their students, graduates will not be compelled to stand before their first class in a secondary, or other school, "absolutely without the slightest knowledge of pedagogy," as a graduate who is now a college professor confessed to the club. Education is receiving more and more the attention it deserves. Colleges, if they are wise, will be in the fore-front of all these movements to help on the cause of education. In no way can they do humanity more good than by training carefully the teachers who are to control and direct the development of the lower schools.

Miss Windscheid, the daughter of the late Professor Windscheid, the famous German authority on Roman law, has been graduated from the University of Heidelberg with the degree of Ph. D. She enjoys the distinction of being the first woman to be admitted to that seat of learning with the privilege of taking her degree.

The trustees of the Catholic summer school of America at Plattsburg, will begin the session of 1894, July 14. It will last four weeks, and will include a special course of instructions for teachers in addition to the regular program. Brother Justin, provincial of the Christian brothers, was made a trustee to fill the vacancy caused by the death of Brother Azarius.

The great mechanical laboratory of the Purdue university, Lafayette, Ind., was destroyed by fire a short time ago. The building was begun a year ago, and was only completed a few days before the fire broke out. It covered nearly an acre and a quarter of ground and cost $100,000. The equipment was new and of the best. The total insurance will not exceed $45,000. Steps have been taken to rebuild, and, in the mean time, the mechanical department is conducted in other quarters.


GERMAN SCHOOL SYSTEM.
The Prussian Schools taken as Standard
E Richard
School of Pedagogy University of the City of New York 1892-93
Age of Entrance
Age of compulsory attendance
3 year's military service.
Certain special schools (indust)+
Industrial
Agricultural
Girls
Praep. schools
Fortbildungsschulen. (Continuation schools)
Volksschulen (People's sch)
Teachers' Seminaries
Higher Girls' school.
Special schools for girls
Names of grades in secondary sch
Agricultural sch (see above+)
Industrial art sch (Kunstgewerbemuseum)
1 year's military service.
Agricultural High sch.
Academy of Arts.
Academy of Music.
Realschule.
Higher classes of certain special sch. (see+above.)
Institute for ecclesiastical music
Kinder-Garten.
Vorschule
Prep. sch
Academy of Mining
Academy of Forestry.
Technical High sch (Polytechn)
Oberrealschule
Mathematics & Natural sciences in University.
Horticultural school.
Pharmacy (University)
Military school (Kadettenanstalt)
Realprogymnasium.
School for veterinary surgeons
Dentistry (University)
Realgymnasium.
Agricultural school.
Modern Languages (at German Universities)
Progymnasium.
Peninière (Sch. for military physicians.)
Gymnasium.
I Faculty of Philosophy.
II Faculty of Theology.
III Faculty of law.
IV Faculty of Medicine.
Universities
— EXPLANATION —
To see what any grade may lead to follow lines to the right and upwards (see however meaning of 7 below)
1 — Fine line horizontal = lower special schools.
2 — Medium line horiz. = Special sch of University rank.
3 — Heavy line horiz. = Primary, Secondary sch, University.
4 — Parallel line = semi-official, unsettled, varying, not regular.
5 | Fine vert. indicates, that scholars are qualified for grades and school above.
6 | Medium vert. separates lower and higher secondary education
7 | Heavy line vertical = identical course for grades connected
8 ‖ Parallel line vertical = identical course for grades connected

Geology and Archeology.

(For high schools and colleges pursuing the subjects, we offer the following remarkably suggestive series of topics. They were treated in a course of lectures delivered by Prof. Franklin W. Hooper, before a class in the Brooklyn Institute.)

I. Physiography.

1. The Great Rivers' Systems and their Work. 2. Glaciers and Their Work. 3. The Ocean and Its Work. 4. Volcanoes and Earthquakes. 5. Geysers and Hot Springs. 6. How Islands and Continents are Formed. 7. What the Life of the Ocean is Doing. 8. What the Life of the Land is Doing. 9. What Man is Doing.

II. The Earth's Structure.

1. The Form and Constitution of the Earth. 2. Rocks and their Mineral Composition. 3. The Sedimentary Rocks. 4. The Metamorphic Rocks. 5. The Plutonic Rocks. 6. The Volcanic Rocks. 7. The Structure of the Earth's Crust. 8. The Succession of Geological Formations.

III. The Earth's History.

1. The Geology of the Adirondacks. (Archean age.) 2. The Geology of the White Mountains. (Cambrian age.) 3. The Geology of the Green Mountains. (Silurian age.) 4. The Geology of the Catskills. (Devonian age.) 5. The Age of Coal. (Carboniferous.) 6. The Age of Reptiles. (Mesozoic.) 7. The Age of Mammals. (Tertiary.) 8. The Glacial Period. 9. The Champlain Period. 10. The Age of Man.

IV. Glaciers and the Age of Ice.

1. The Glaciers of the Alps. 2. The Glaciers and Fiords of Norway. 3. The Age of Ice in Europe. 4. The Glaciers of Alaska. 5. The Age of Ice in North America. 6. The Ice Age and the Age of Man.

V. Local Geology.

1. The Geology of Brooklyn. 2. The Geology of Long Island. 3. The Geology of Manhattan Island. 4. The Geology of the Palisades. 5. The Red Sandstones of New Jersey. 6. The Geology of the Hudson River Valley.

VI. Archeology.

1. The Men of the River Gravels in Europe. 2. Early Man in America. 3. The Cave Dwellers of Europe. 4. Prehistoric Man in Scandinavia. 5. Early Man in Great Britain. 6. The Age of Stone in Egypt. 7. The Swiss Lake Dwellers. 8. The Lochs and Crannogs of Scotland. 9. The Mound Builders of the Mississippi Valley. 10. Prehistoric Indians.

A German Educator on American Schools.

[SPECIAL CORRESPONDENCE.]

One often hears Americans speak of German schools; some time ago I heard what a German had to say of American schools. The speaker was Dr. Waetzoldt, a prominent educator in Berlin, who went to the Chicago exposition to represent the educational affairs of Germany. The occasion was a meeting of the Berlin Teachers' Union. This meeting was quite interesting to a foreigner apart from the lecture.

Several hundred teachers were present. Fully nine-tenths were men. Many of them were old men, gray-headed, bald-headed men. The audience sat in groups around small tables. Many smoked. Nearly all, including not a few ladies, drank beer.

During the lecture waiters glided noiselessly through the crowd serving beer, and occasionally a lunch.

The chairman and secretaries who sat at a long table on the platform were also duly served with beer from time to time.

No body of German teachers would think of exposing themselves to the peril of a dry lecture without having an adequate supply of beer at hand.

When the time for the lecture arrived, the chairman rang a hand-bell, and the audience came to order. The lecturer began by referring to the colonial and mixed character of the American people. Intellect is in constant combat with nature.

The demand is for practical men. There are proportionally but few well-educated men.

The country has but little history and is poor in monuments. Children are gifted and learn quickly, but lack sentiment.

Only practical results are aimed at. Dr. Waetzoldt limited his discussion to the common schools, and, in these, to the elementary stage. The lecture was remarkable, and, to an American, disappointing, in what it omitted.

Not a word about our great colleges and universities. Not a word for our excellent high schools.

Our splendid schools architecture, school furniture, and appliances, not once mentioned. Our strong and healthy educational sentiment which pervades all classes, high and low, rich and poor was unnoticed by the lecturer.

The defects of our system more than the merits seemed to have caught the eye of the lecturer.

In comparing salaries of teachers in Berlin and Chicago, the vast difference in favor of the latter was offset by the statement that a mark (about 25 cents) in Germany will purchase as much as a dollar in America. The fact is that there is no great difference in the cost of living here and there. Possibly three marks here would go as far as four in America. In 1890, the lecturer admitted, it cost in Prussia only 29 marks per year for the schooling of each pupil, while in the U. S. it cost 72 marks. In regard to vacations, said the speaker, America is an El Dorado. There are states with an average of only 56 school days in the year. The audience laughed. The average for the whole country is 134 days, as against nearly double that number in Prussia.

The non-attendance of so many children in America surprised the audience.

In N. Y. state, in 1790, 28 per cent., of children were out of school; in Maryland, 45 per cent. In Chicago, 60,000 children do not attend school.

Another novelty to the lecturer was the education of boys and girls together, in the same school, and same classes. The lecturer explained the possibility of this by saying, "Girls are much more intelligent there than here." It did not occur to him to add that girls in Germany would be more intelligent than they are, if they had the same chance as boys.

The large proportion of female teachers in America astonished the lecturer. (In Germany about nine-tenths of the teachers are men.)

He caused a roar of laughter by mentioning a certain assemblage of teachers in which there were over 200 women and only one man. The lack of male teachers, said the speaker, is due to the fact that the teacher's calling is not held in high esteem, and that other vocations offer superior inducements.

Teachers are generally young. The greatest evil in the school system of the U. S. is political interference. Changes are made so frequently through political influence that superintendents and teachers do not have time to complete their work. Teachers, as a rule, are poorly prepared for their work. If an applicant can answer a few questions on certain subjects he is at once turned loose on the children.

Instruction is given largely through the use of text-books. If the pupil knows these, he has enough. The lecturer visited a certain school. While he was present, a pupil asked the teacher a question, the teacher replied, "The answer is given in the book, look for it there."

The text-book method is defended by leading American educators. The lecturer quoted the present U. S. commissioner of education, as saying (in 1876) that definiteness and certainty in instruction are to be attained by the use of the text-book. (To understand why a German is perplexed by the use made of text-books in American schools one must remember that school-books here are few, very small, and are not "studied through," as with us. Lessons are not assigned in books. The pupil learns only what the teacher first teaches. As Dr. Waetzoldt himself remarked to me, one day, when visiting his school, "All new matter comes to the pupil first through the teacher." Our word, "recitation," implying something learned from a book and repeated, or said over in some way in the lesson-hour, has no corresponding use here.) The address concluded thus: "Although all pedagogical efforts are worthy of recognition, we have absolutely no ground to wish for ourselves the methods and arrangements of the American schools."

THEO. B. NOSS.

New York City.

Pres. Charles De Garmo of Swarthmore college, the leading exponent of the Herbartian principles in this country, will deliver a series of lectures on Herbart and his principal followers before the School of Pedagogy, in the chapel of the university, Washington square, on Saturdays, March 17, 24, 31, at 11 oclock A. M. Teachers and those interested in education are invited to attend.

The boys and girls of the city schools appear to appreciate the advantages of the introduction of the Isaac Pitman system of shorthand. One pupil writes in a letter to the New York *Recorder, Jr.*: "We all think it is a grand thing that we are going to be taught shorthand in the day schools, as it will give us a much better chance of getting a position after leaving school. I guess we score a point here in New York over Brooklyn schools, as they do not have a supplementary course."

The University of the City of New York, besides the erection of its fine new building up town, will build a handsome new structure on the site of the old on University Place. The tearing down of the venerable college edifice will begin about the first of May. The new building will be nine stories high. The two upper floors will be retained for the schools of law and pedagogy. The lower part of the building will be occupied by the American Book Company. No business signs will appear anywhere upon the building.

New York's Association of Sewing Schools is the name of an active non-sectarian organization that came into existence about three months ago. Its purpose is the training of teachers in sewing. A recent meeting was attended by the representatives of twenty schools, (twice that number of schools are comprised in the entire membership). The membership is not limited to the city, one of the schools represented being at Tarrytown, and the activity is extended as far as Trenton, N. J., where a teacher from this association carries ideas and practices in training each week. The present course of the teachers' class will be limited to five lessons, although a demand is made for longer continuance.

The plan of instruction is in charge of eight professional teachers. Each of the class makes model patches as examples of different kinds of sewing, each series being placed in a separate book, like a scrapbook, to be retained by the maker. The methods in the industry are explained in talks. How to teach children in all the details of the art of sewing is the main consideration.

In the spring a general conference of all the teachers of the schools belonging to this association is to be held. The officers are: President, Mrs. Richard Irvin; vice president, Mrs. Chester Griswold; secretary, Miss Dean; treasurer, Miss J. Patterson.

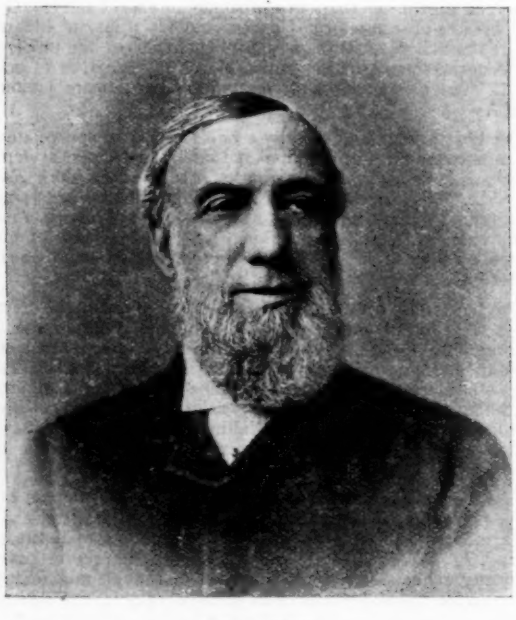
Miss Ellen E. Kenyon, associate editor of THE SCHOOL JOURNAL, lectured on Sunday evening, March 11, before the Science Sermons Society, in the lecture-room of Dr. Collyer's church, on "The Evolution of Free Womanhood." Her points were, briefly: That womanhood and manhood develop as nearly side by side as an unequal education will permit. That woman is a victim of arrested development through cramped education. That she must break away from traditional and needless limitations and demand that girls, as well as boys, shall have their natural powers cultivated. That education makes free by revealing to its subject his own higher nature and teaching him voluntary and rational obedience to its law. That womanhood has thus progressed, in spite of traditional restraints and that the Age of Peace gives her conditions for further development. That to be ethical, one must be free. That as a sex, woman is under man's domination in three ways: (*a*) as a wife and mother in the isolation of the home: (*b*) as a wage-earner, under unequal conditions of education and political status; (*c*) as actual prey in a moral cannibalism still tolerated in Christian countries.

Thoughtful women are beginning to realize that with them lies the responsibility of wresting their sex from conditions of ignoble servitude. The means are Education and Legislation. Girls must be trained into strong-bodied, brave-souled, clear-headed, and self-reliant women, and women must take a hand in the law-making of this alleged government by the people. That the most responsible work of the world, involving the deepest thinking, is motherhood, and women must be liberally educated for its function. Mothers must come out of their isolation and meet in societies, large and small, for consultation as to the needs of women, children, men, society, and the future race.

Caleb S. Bragg.

Mr. Caleb S. Bragg, managing director of the American Bo k Company at New York, while on his way from that city to his old home in Cincinnati, on March 7, died in the train before reaching Pittsburg. He was accompanied by his son C. C. Bragg and wife.

In the death of Mr. Bragg, the American Book Company sustains an irreparable loss and the school book publishers of the country lose one of their best known, oldest, and most respected members.



CALEB S. BRAGG.

Born in Sidney, Maine, in 1823, Mr. Bragg left his home at an early age, like so many young men in New England, to seek and find fortune in the West. He began by teaching school in Ohio, but soon entered the employ of W. B. Smith & Co., publishers of school books at Cincinnati, where he soon demonstrated his fitness for the business in which his heart was so fully engaged through the remainder of a long and active life. Later he became a member of the firm of Ingham & Bragg, booksellers of Cleveland, where he remained until 1871, when he went to Cincinnati to become a member of the firm of Wilson, Hinkle & Co., successors to W. B. Smith & Co., his former associates; this firm subsequently became Van Antwerp, Bragg & Co. It was with the last named firm that Mr. Bragg won his greatest distinction and will be longest remembered.

His untiring zeal, unflagging energy, almost unerring judgment and insight were largely instrumental in building up a business of the first magnitude and stability. With the conservatism of the East, he united the push and enterprise of the West and from his experience as a teacher and as a traveling representative of a publishing house, he fully appreciated the needs of Western schools.

When the American Book Co. was formed in 1890, Mr. Bragg was made managing director of the Cincinnati division, but after two years, he took a well earned rest of nearly as long a period, most of which he devoted to foreign travel. But his heart was still in his old business; its cares and responsibilities were pleasures to him, and, when, in November, 1893, he was invited by his associates to assume the management of the New York division of the Company's business, he took up the duties gladly and with the spirit and buoyancy of youth.

Mr. Bragg was a fine type of the strength, enterprise, courage, perseverance, and unyielding pluck which characterize the best New England manhood. Gentle in manner, deliberate in speech, with even temper and judicial mind, he combined the force, the insight, the knowledge of men, and the will power which characterize great military commanders.

His business letters were always models of clear and vigorous style, and his whole life was lighted by a play of humor which made him often quoted and always remembered by those with whom he came in contact. His most earnest instructions to agents were pointed with a happy phrase, a quaint comparison or apposite bit of personal experience, which the hearer or reader would always treasure for its own sake, even apart from the advice which it was intended to illustrate.

Kind-hearted, hospitable, generous, Mr. Bragg was a good neighbor; no community of which he was once a member could fail to miss him when he departed. He contributed liberally to religious, charitable, and educational institutions. At his old home in Avondale, Ohio, a suburb of Cincinnati, he was for many years an elder in the Presbyterian church, and had just been re-elected to that office, at the expiration of his term, only a week before his death. His wife and younger son, C. C. Bragg, survive him; the oldest son having died about one year ago.

Henry O. Houghton.

THERE are few publishers in the United States as well-known to the writers and readers of books as Mr. Henry O. Houghton, senior member of the firm of Houghton, Mifflin & Co., Boston. He has fairly earned his position by a business career of over forty years, marked by ability, integrity, and a constant aim for the highest achievement possible in his field. Mr. Houghton is a Vermonter and it is natural that natives of that state should be proud of one who has earned so proud a place.

The dinner given to him, Feb. 14, at Young's Hotel by the Vermont society, whose president he has been for eight years, was presided over by the chief justice of the state, the Hon Walbridge A. Field; and about sixty other sons of Vermont were present. Hon. Alden Speare, who made the opening speech, said Mr. Houghton came to Boston early in the forties and went to work, getting a salary of $5 a week, though if he had not been a college graduate he might not have obtained half as much. He possessed each attribute of George W. Childs' epitome of that which led to success in the end—industry, temperance, frugality. Mr. Houghton made an appropriate reply, and then speeches were made by several others.

HENRY OSCAR HOUGHTON.

Henry Oscar Houghton was born in Sutton, Caledonia county, Vt., April 30, 1823. He made the best of his opportunities for improvement in the public school, and subsequently spent some time at the Bradford academy. While learning the trade of printer in the office of the Burlington *Free Press* he pursued a regular course of reading and study, and later entered the University of Vermont, from which he was graduated, after a heroic struggle for self-support, in 1846.

His first choice of a calling was teaching, but failing to find an opening he went to Boston and secured employment as a news-paper reporter; but he soon returned to the printing-office and in 1849 became a member of the firm of Bolles & Houghton, of Cambridge. In 1852 he established the "Riverside Press," under the firm name of H. O. Houghton & Co., of which he is still the head. The firm name was changed in 1864 to Hurd & Houghton; in 1878 to Houghton, Osgood & Co., and in 1880 to Houghton, Mifflin & Co. The change of 1878 brought into the firm the elegant list of books of Ticknor & Fields, containing the most eminent names in American literature, as Longfellow, Whittier, Emerson, Hawthorne, and Lowell. The publication of these works in the best form called for the exercise of the literary and artistic taste which Mr. Houghton possesses in so marked a degree. He is quiet, sagacious, and far-seeing, but energetic, and has been the controlling spirit of the business, that has attained a great and well-deserved success. In 1872 he was elected mayor of Cambridge and discharged the duties with ability and faithfulness.

Edmund A. Crenshaw.

The death from pneumonia of Edmund A. Crenshaw, of the firm of Bullock & Crenshaw, 528 Arch street, Philadelphia, took place recently at Germantown. He was born in Hanover county, Virginia, in 1827. His father, Nathaniel Crenshaw, was a prom-

inent member and minister in the Society of Friends, who, after uniting himself with the Friends, liberated all the slaves which came to him by inheritance, and brought them to Pennsylvania and saw them comfortably settled as freemen.

Edmund A. Crenshaw received his early education at Westtown boarding school, and subsequently graduated at Haverford college. In 1846 he entered the store of Smith & Hodgson, at the northeast corner of Sixth and Arch streets, to learn the drug business; this business house had been established by Daniel B. Smith in 1819. In 1849 he graduated at the Philadelphia college of pharmacy, and in the same year, in connection with Charles Bullock, succeeded Smith & Hodgson, and continued the business at the old stand until 1868, when the firm of Bullock & Crenshaw removed to 528 Arch street. The firm has become widely known among teachers for the importation, manufacture, and sale of chemicals and chemical apparatus.

Mr. Crenshaw was a prominent member of the Protestant Episcopal church. His commanding presence distinguished him among men, while the dignity, courtesy, and gentleness of his demeanor made him equally conspicuous among his fellows. In the church, in his business affairs, in his domestic relations, and in his social intercourse he was equally respected and beloved by all whose privilege it was to know him.

The business of the firm will be conducted as before.

The Joseph Dixon Crucible Company.

Graphite Exhibit at the World's Fair.

The Jos. Dixon Crucible Co., Jersey City, N. J., is the only concern in the world which manufactures every article of which graphite is a component part. With the invention by Joseph Dixon in 1827 of plumbago, or blacklead crucible, the crucible business was revonltionized. At that date began also the manufacture of Dixon's celebrated "Carburet of Iron" stove polish, foundry facings, and the development of an industry now grown to enormous proportions and fittingly represented by the Joseph Dixon Crucible Company, who are not only manufacturers, but miners and importers and headquarters for graphite in all its varied forms.

In 1872 the company placed on the market its famous "American Graphite" pencils, which are used in more schools and colleges, probably, than any other make of pencils, and yet lead pencils form only a part of the manufactures of the Dixon Company.

In the above illustration, standing on a pedestal, there is shown a retort used by the silver smelters. It is made of graphite, weighs about 150 pounds and holds about 900 pounds of silver. The regular shape of crucibles, some of which can be seen in the cases in the background of the picture, are made in sizes to hold from a ¼ pound to a thousand pounds of metal, and are used for melting gold, silver, brass, steel, and other metals.

Graphite, sometimes called blacklead or plumbago, is one of the three principal forms of carbon, of which the diamond and charcoal are the other two. Unlike the diamond or charcoal, graphite is not affected by heat, cold, acids, or alkalies. It is for this reason that graphite is used for making crucibles, stove polish, foundry facings, electrotypes, lubricants, etc. It is a unique material and enters into more varied uses probably than any other known article.

The Company's exhibit of general and special graphite products at Chicago occupied a space 25 x 28 feet. A very handsome cherry façade fronted the space, while the sides were hung with tastefully arranged portieres. Crucibles, Retorts, Ladles, Stopper-Heads, Nozzles, Graphite Boxes, Phosphorus Chargers, Resistance Rods, and Devices, incandescent filiment forms and other special goods made of graphite, were shown in upright cabinets. In another case was shown the development of an electrotype plate, in which process the use of graphite is an essential. In still another case were shown over fifty varieties of graphite, for as many different uses and under as many different names, such as graphite for lubricating, stove polish, foundry facings, for green, dry, or loam castings; core wash, ingot mold wash, shot and powder glazing, electrotypers, gilders' use, hatters' use, rubber packings, piano and organ actions, "pot leading" yachts, for crucibles, lead pencils, paint pigment, lubricants, etc., etc.

There were also shown samples of graphite from all the principal sources from which that article is obtained. One very fine sample from the Island of Ceylon weighed nearly 300 pounds. Comfortable chairs, with writing desk and stationery for the free use of those who might desire it, gave to the exhibit an air of genial comfort and ease.

It is quite possible that many of the readers had an opportunity of seeing this instructive exhibit of the Company as well as the fine display of American Graphite Pencils, which was shown in the gallery of the Manufacturers building, and which was the only exhibit at the World's fair of lead pencils made in the United States.

A Remarkable Record.

A most remarkable record made during a period of business depression was that of the Slatington-Bangor Syndicate of Slatington, Pa. It has been in operation about a year. The offices were opened Jan. 5, 1893, but it was not until March 20 that they fairly began to do business. When they started they had not a single customer nor an order, but on Dec. 31 their orders numbered 1272 and they had bought and shipped 704 carloads, containing 34,670 squares of roofing slate, besides more than 100,000 square feet of slate blackboards and milled stock. The great bulk of this slate was shipped from the Slatington region, but they also shipped largely from Bangor, Pen Argyl, Chapman, Peach Bottom, Vermont, and Maine quarries. Their trade extended from New England to Texas, and westward to the Pacific coast. Shipments were made to every state in the Union, with two exceptions. The December trade, especially in blackboards, was very large; in January, large shipments were made for some of the most costly new school buildings in the West.

Natural slate blackboards have many things to recommend them, including fine surface, splendid marking and erasive qualities, little dust, no glare, economy, and no expense for repairs. In hundreds of places natural slate is being substituted for the old blackboards to stop the heavy expense of keeping them in repair. These slate blackboards are made of solid slabs, from 2½ to 4 feet wide, and ¼ to ½-inch in thickness. Standard sizes are 3, 3½, and 4 feet wide and from 3 to 5 or 6 feet long. These slabs have a finely polished surface and are cut and jointed so as to fit closely and exactly fill the spaces on the walls.

The syndicate, during the present year, will devote special attention to the export trade; negotiations are pending with parties in Great Britain, Italy, and Australia. An agency has just been opened in Canada and American slate will be placed in that market in large quantities.

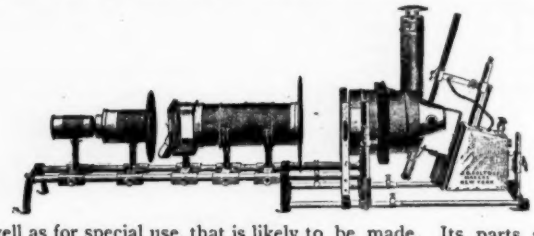
A Valuable Piece of School Apparatus.

The Projection Lantern.

Again we call attention to the very great importance of the Projection Lantern and its growing popularity among teachers. In New York city it has taken its place among the most important accessories. Prof. Bickmore, of the Museum of Natural History, Central Park, is entitled to great credit for his successful application of the lantern to public lectures to teachers, and its general introduction into the state school system. It is only since his courses of lectures were inaugurated that the lantern has become to be so thoroughly appreciated by teachers and the general public.

Though projection apparatus has always been used in educational institutions to some extent, it has, as a rule, been monopo-

lized by the scientific departments, being considered too costly and troublesome for other courses of instruction. Heretofore there was good reason for so considering, but, within the past three years, the improvement of the lantern has been a study and field of experiment with a firm of New York manufacturers, who have far outstripped all others in the perfection, simplicity, and economy of apparatus. We do not say this in disparagement of other forms, but, when one person or firm devotes time, thought, and money to the perfection of one particular object, apparantly excluding all considerations except that of a high stage of perfection in their productions, we think they merit public recognition, and we are glad to be able to set before our readers an illustration of one of the forms of apparatus manufactured by J. B. Colt & Co., New York and Chicago. Mr. Charles Goodyear, Jr. (a grandson of Charles Goodyear of India Rubber fame) is the member of the firm upon whom has developed the mechanical and optical construction of their lanterns. "The Criterion" form is his production, and it is probably the best form of lantern for general, as



well as for special use, that is likely to be made. Its parts are made with special tools and machinery, so that they are easily removable and as easily replaced, not for once only, but throughout a long course of use. Therefore, to change from single to double lantern, from one size of objectives or condensers to other sizes, from the view projection form to the *Polariscope*, *Microscope*, *Vertical*, or other scientific projector, is a matter of the utmost simplicity. But the most important of the productions of this progressive firm is their Perfected Automatic Self-Centering Arc Electric Lamp for the lantern in particular, but for other purposes as well.

In these days of electric lighting, this lamp is perfection for the magic lantern. By a touch, your lantern is lighted, with a light so brilliant that it is not even necessary to make a room dark for its use.

The illustration herewith shows one of these new Arc Electric Lamps set up with the Criterion Lantern, the front of which has been removed, giving place to the Optical Bench with Polarizer, Analyzer, etc. We earnestly advise our readers to write to Messrs. J. B. Colt & Co., 16 Beekman St., New York, or 189 La Salle St., Chicago, Ill., for their handsome catalogue for 1894, just issued, not forgetting to enclose 6 cents postage for it, and to keep in touch with them if there is any probability of having use for apparatus of this kind or for lantern slides. They are photographers, slide colorers, and makers of special slides as well as of apparatus.

Niagara Falls in Winter.—A number of newspaper men were invited last Tuesday by General Passenger Agent George H. Daniels, of the New York Central and Hudson River railroad, to visit the ice bridge at Niagara Falls, which, notwithstanding the mild weather, is still in good condition and is one of the greatest natural wonders. Hundreds of visitors come to see it every day. In the unavoidable absence of Mr. Daniels, the Railroad Co. was ably represented by General Eastern Passenger Agent Milton C. Roach, and C. E. Story. On the arrival of the train at Buffalo, they were met by Major Weeks, the Buffalo agent, who invited them to breakfast at the Iroquois hotel. Then a visit was paid to the finest public stable in the world, just finished for Mr. C. W. Miller. This immense establishment of six stories high, has stalls for 250 horses, holds numerous carriages, sleighs, and wagons of every description, is provided with the latest inventions for the comfort of man and beast, and is lighted by its own electric plant. Mr. Miller is the sole owner, and from a small beginning twenty years ago has come to own this mammoth establishment worth $600,000.

A drive through the city in some of Mr. Miller's handsome carriages was next in order, followed by a visit to the ice bridge at the Falls. On the return to Buffalo, the party was driven to the picturesque Hotel Niagara, where Landlord Fox gave them a magnificent banquet, and the party returned to the train homeward bound.

Highest Award.

Medal and three diplomas have been given to the New York Condensed Milk Company for the superiority of its Gail Borden Eagle Brand Condensed Milk, Borden's Extract of Coffee and Unsweetened Condensed Milk, exhibited at the World's Columbian Exposition.

For that tired feeling Hood's Sarsaparilla has no equal. It invigorates the whole body.

New Books.

In a volume of 415 pages is compressed the *First Part of Arnold's Practical Introduction to Latin Prose Composition*, prepared by Prof. J. E. Mulholland. This book is complete in itself and so far as it goes fulfils the design of the author; yet, as the exercises consist of single, short, and unconnected sentences, it was deemed advisable to introduce other and longer exercises in which the student should be taught how to arrange his ideas in passages of considerable length, and in which are involved most of the minutiæ and intricacies of the Latin idiom. Part II. of this volume is adapted to this purpose. The principal features of the book are copious but concise illustration of Latin synonyms mainly from the standard treatise of Döderlein on this subject; throughout, a careful and precise notation of the differences of idioms between the Latin and English languages; a frequent calling of the attention of the student to nice points that otherwise escape his notice; and a constant repetition under new forms and combined with new matter of what has gone before. It is a plan calculated to exercise the powers of observation and reflection of the student. Many improvements have been made in this revise American edition that will be duly appreciated by the teacher of Latin. (American Book Co., New York, Cincinnati, and Chicago. $1.00.)

The study of physics by experiment is the method that brings the best results, both as regards actual knowledge gained and discipline acquired. A book prepared with the needs of classes in higher schools and colleges, by W. G. Woollcombe, M. A., B. Sc., senior science master in King Edward's high school, Birmingham, bears the title of *Practical Work in Heat*. The apparatus required for the work presented here is not expensive and may be obtained from the ordinary stock of a chemical laboratory. The descriptions are intended for the student, but the teacher may give further directions while the experiment is in progress. The student is expected to enter into a note-book, kept especially for the purpose (*a*) the enunciation of the experiment; (*b*) a description of the method; (*c*) a figure, carefully drawn, of the apparatus used; (*d*) the results of a properly tabulated form. Thus he is trained to habits of scientific investigation. (Macmillan & Co., New York and London.)

English literature consists of stretches of bright vendure in which poetry and romance flowered abundantly, interspersed with desert regions of dullness, though not without some green oases. The eighteenth century is usually considered a dreary period in English literature, but William Lyon Phelps, instructor in English literature at Yale college has searched for and found in it *The Beginnings of the English Romantic Movement*. The period covered is from 1700 to 1765, and although the author found in the poetry of the last forty years some desperately dull reading he considers that his search was amply rewarded. This is an unworked field and his opinions have been based on original investigations. The book will therefore attract unusual interest. The author has tried to establish two things: first, that the spirit of romanticism has never been wholly extinct in English literature and second, that between 1725 and 1765 the romantic movement was a real, if quiet force, and that in these forty years may be found the seeds which sprang to full maturity in Scott and Byron, and in all the subsequent romantic literature of the nineteenth century. The change of form and spirit of the poetry from the Augustine age to Ossian and Gray is certainly an interesting subject for students of English literature. From this book they can get an insight into the causes that have produced such a rich harvest of poesy in the nineteenth century. (Ginn & Co., Boston. $1.10.)

Teachers who desire to acquaint themselves with the educational principles of Frœbel will find them presented in the work prepared by William H. Herford, B. A., Lond. The work is in two volumes treating of theory and practice respectively. Part I. treating of Frœbel's *Theory of Education* is an octavo volume of 112 pages. The material is adapted from Frœbel's "Education of Man," which gives principles and methods for training and instruction of man from birth up to the end of boyhood. His motto of theory "Harmonious development," and his watchword of method, "Learn by doing" are of universal application in the practice of teaching. The editor has tried to give what is Frœbel's own in English as close as possible to the very words of the author, retaining the German custom of beginning a noun with a capital letter. (D. C. Heath & Co., Boston.)

The Boy's Companion is a little illustrated volume of stories by E. E. Byrum containing warnings, of evils of various kinds. Its object is to lead boys to pure habits and so increase their health and happiness. (Gospel Trumpet Pub. Co., Grand Junction, Mich.)

The second part of the *Progressive French Reader*, by H. H. Curtis and L. R. Cregor, B. A. (the first part having appeared in 1890), contains selected pieces, questions, notes, and vocabulary,

and makes an octavo volume of 156 pages. The editors, in making the selections, have endeavored to get extracts that are interesting without sacrificing anything of importance. Questions on the text have been appended to certain passages, in order to give some assistance to those teachers who attempt conversation. A few business letters etc., give a practical turn to the pupil's studies. (William Drysdale & Co., Montreal. 50 cents.)

Art, Music, and Nature —the title of a book made up of selections from the writing of David Swing, compiled by M. E. P. Many of these extracts are of great beauty, both of thought and expression. The book is elegantly bound in white with green back, with decorations and lettering in silver and gold. It has a fine portrait of Mr. Swing. (Searle & Gorton, 69 Dearborn street, Chicago.)

The matter in the *Elements of Synthetic Solid Geometry*, by Prof. N. F. Dupuis, of the University of Queen's college, Kingston, Canada, has formed the subject of an annual course of lectures to mathematical students for several years. It was so well received and has proved so valuable to them that the publication of the manuscript as a book was the result. The first part deals with a consideration of the descriptive properties of lines and planes in space, of the polyhedra, and of the cone, the cylinder, and the sphere. The second part of the work deals with areal relations, that is, the relations among the areas of squares and rectangles on characteristic line-segments of the prominent spatial figures. The third part is devoted to stereometry and planimetry. The fourth and last part begins with an explanation of the principles of conical or perspective projection; the student is introduced to the conic, and lead to understand its meaning, and the relation of the various conics to one another. At the close of the work there is a large collection of miscellaneous exercises. The mathematical student will find that the course presented in this volume will greatly advance him in his favorite science. (Macmillan & Co., London and New York. $1.60.)

A review of the history, present condition, and outlook of the Independent (Congregational) churches of England has been given in an octavo volume of 344 pp. by Amory H. Bradford, D. D., under the title of *The Pilgrim in Old England*. Usually the term Pilgrim has been applied to those who left England, went to Holland, and afterward came to America in search of religious liberty, but this author thinks it also belongs to an intellectual and spiritual movement of which the migration to the new world in the *Mayflower* was but a small part. In this book are considered life and form, beginning and growth, church and state, the present condition, creeds, conditions of church membership, the pulpit, and the outlook. These chapters are of keen interest to all thoughtful religious readers; especially so, perhaps, to Congregationalists and Baptists as decendents of the great Independent movement of Cromwell's time, and to Episcopalians as in sympathy with the Anglican Communion—both the English establishment and the American voluntary system. It is chiefly a record of what has been done in Old England by the brethren of the Pilgrims who settled New England. The labors of these Independents were so far-reaching that they make a fruitful theme for study for students of general as well as of ecclesiastical history. (Fords, Howard & Hulbert, New York.)

The study of logic is beneficial to the mind in that it enables one to criticise his mode of reasoning and thus to arrive at the truth, much more easily and surely. By many writers the subject has been much befogged and thus rendered unattractive. In *The Process of Argument*, by Alfred Sidgewick, the matter is much simplified. This book has for its aim the extension of a knowledge of the more useful parts of logic. It is written for those interested rather in the war against fallacy than in the grammatical inquiries which form so large a part of the logic taught in the text-books. As far as possible words are used in their every-day sense, and no attempt is made to force the reader to accept hard doctrines or strange definitions, which are yet not his own. It is an excellent book for those who want to get at the main points in the science in few words. (Adam & Charles Black, London. $1.25.)

The system of instruction given in the book by C. Dean, entitled *The Science of Utterance*, has been used successfully in the schools and the author offers it to teachers and pupils with the hope and belief that it will serve the purpose for which it has been carefully prepared. It treats of development of voice, gesture, and other things that come under the subject of elocution, in a very concise manner. The illustrations show the structure of the vocal organs, movements for developing the lungs, etc. A portion of the book is devoted to selections for speaking, and there is a valuable list of words sometimes mispronounced. (A. Flanagan, Chicago.)

A taste for the best poetry formed in youth is an acquirement that gives more satisfaction probably than any other one can possesss. We have our favorite poems that we learned to love when young, and most of us probably wish that our acquaintance with poetry had been much more widely extended. A book of poems for the young, if the selections are well made, needs no apology. *The School Poetry Book*, compiled by James H. Penniman, instructor in English in the De Lancey school, contains some of the very best lyric poetry in the language; in fact, about everything in this book has become classic. We will mention only a few, as Lowell's "Fountain," Wordsworth's "Lucy Gray," Scott's "Lochinvar," Holmes' "Old Ironsides," Hunt's "Abou Ben Adhem," etc. The book has high value, as the selections have evidently been made with the greatest care. (James H. Penniman, Philadelphia.

An ingenious *Bible Time Ladder*, by means of which may be imparted much instruction concerning scriptural personages, etc., has been invented Mrs. Clara Smith Colton, Patchogue, N. Y. It consists of strips of cardboard on which are printed names, dates, and references and in putting them together children find employmet for their hands as well as their minds. This invention is convertible into four different things—a ladder, a cross, a star, and pillars of the patriarchs, the last named illustrating the present Sunday-school lessons. The five main points impressed by the ladder are: (1) God's preparation for the salvation of the world, (2) the ancestors of Christ, (3) promises of a Savior, (4) the receiving of the promises of a Savior by the ancestors of Christ, and (5) the lesson to us of how we should celebrate Christmas. The first edition of the ladder was sold in six weeks, and a second edition is now out. (45 cents.)

THE SCHOOL JOURNAL is published weekly at $2.50 a year. To meet the wishes of a large majority of its subscribers it is sent regularly until definitely ordered to be discontinued, and all arrears are paid in full, but is always discontinued on expiration if desired. A monthly edition, THE PRIMARY SCHOOL JOURNAL for Primary Teachers is $1.00 a year. THE TEACHERS' INSTITUTE is published monthly, for those who do not care for a weekly, at $1.00 a year. EDUCATIONAL FOUNDATIONS is a monthly series of books on the Science and Art of Teaching, for those who are studying to be professional teachers, at $1.00 a year. OUR TIMES is a carefully edited paper of Current Events, at 30 cents a year. Attractive club rates on application. Please send remittances by draft on N. Y., Postal or Express order, or registered letter to the publishers, E. L. KELLOGG & Co., Educational Building, 61 East 9th Street, New York.

A Striking Success SPALDING'S INTRODUCTION TO BOTANY has met with an unusually favorable reception and we have already, in the few weeks since its publication, received introductory orders from the following among many other equally important schools:

High School, Newton, Mass.
High School, Fall River, Mass.
Clinton Liberal Institute, Ft. Plain, N.Y.
Sanborn Seminary, Kingston, N. H.
Normal School, Westfield, Mass.
High School, Bloomington, Ills.
High School, Grand Rapids, Mich.
High School, Battle Creek, Mich.
High School, St. Paul, Minn.
High School, Duluth, Minn.
High School, Madison, Wis.
Normal School, Winona, Minn.
Normal School, Milwaukee, Wis.
Normal School, Greeley, Col.
Agricultural College, Brookings, S. D.
Hedding College, Abingdon, Ills.
University of Washington, Seattle, Wash
Baylor University, Waco, Tex.
So. Div. High School, Chicago, Ill.
Etc., Etc.

Geo. L. Chandler, Supervisor of Science, Public Schools, Newton, Mass.: "The plan is the right one—a laboratory manual with enough collateral information."

W. H. Chamberlin, Teacher of Botany So. Div. High School, Chicago: "The book reaches my ideal of what a book in botany ought to do for the student."

SPALDING'S BOTANY IS A LABORATORY BOOK.

"Laboratory work should be the chief feature of the year's course in Botany recommended for secondary schools."
—Conference on Botany of the Committee on Secondary School Studies of the N. E. A.

762) D. C. HEATH & CO., Publishers, BOSTON, NEW YORK, CHICAGO.

(Selected from OUR TIMES, monthly, 30c. a year.)

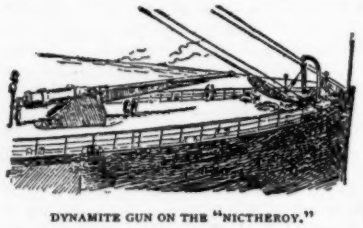
Von Bulow, the Pianist, Dead.

The celebrated pianist, Hans Guido von Bülow, died in Cairo Egypt, on Feb. 12. He was born in Dresden Jan. 8, 1830, and in 1848 was sent to the University of Leipzig to study law. While writing for the local papers to help pay his way he drifted into musical criticism, and took up the defence of Wagner, whom all the critics were then attacking. Later he went to Weimar, where he became familiar with Wagner's operas, then being performed under Liszt's leadership, and this led him to give up his legal studies and to ask Wagner, then an exile at Zürich, to accept him as a pupil. He was an apt pupil and conducted many operas under the direction of the master. In 1868 Wagner selected him to conduct the performances of "Tristan and Isolde" and later von Bülow conducted the first performances of "Die Meistersinger." Then he returned to Weimar and studied piano playing under Liszt, following with a concert tour of the principal cities. Next he became a piano professor in Berlin and later through the influence of Wagner was appointed court pianist at Munich. In 1872 he went on an extended concert tour through Europe and in 1875 and 1889 visited the United States. Among his most important compositions were "Nirwana," "Der Sanger's Fluch." "Il Carnovale di Milano," etc. As a pianist he was considered in later days as second only to Liszt. His memory was so great that he could play his entire repertoire by heart.

HANS GUIDO VON BULOW.

The Future Warship.

The invention of dynamite guns and improved torpedoes promises to make as great a revolution in war vessels as was made when Ericsson invented his monitor. That brought in the era of iron ships, but dynamite is likely to make armored ships utterly worthless. The new Brazilian cruiser *El Cid* (*Nictheroy*) is furnished with an immense dynamite gun, and she is the first vessel in which this new implement has stood a chance of a test in actual warfare. As will be seen from the illustration, the gun is very long and points straight ahead, though it can be moved from side to side. It will throw fifty pounds of nitrogelatin at a range of three and a half miles, two hundred pounds at two and a half miles, and five hundred pounds at one and a half miles. Approaching bow on she would afford a very small mark to fire at. If a shot from this dynamite gun should strike an iron or other ship it would wreck it, or if in the water within forty feet would disable it for action. The shot is thrown by means of compressed air, which does not give shock enough to explode the dynamite in the gun, as powder would be likely to do.



DYNAMITE GUN ON THE "NICTHEROY."

Captain John T. Cramer, of the British army, an expert in such matters, thinks the *Nictheroy* is something like what the future warship will be. Of course the faster they can be built the better. They must be seaworthy, and of such stability that their dynamite guns can be effectively used in a considerable sea way. They can be comparatively lightly built of steel, with only sufficient armor to protect vital parts from the effect of rapid-firing guns on torpedo boats. There will be no necessity for encumbering them with the fearful weight of armor that the present type of battleship has to carry, for a dynamite shell will as certainly destroy the heaviest ironclad as the lightest cruiser.

RAPID-FIRE GUN.

Torpedo boats will be carried on her deck or slung from davits. These being lowered and preceding her into action will, by a blinding shower of metal from their rapid-firing guns, do much to disconcert the aim of the enemy's gunners, besides protecting her from torpedo boats and giving them a chance to use their own torpedoes. The ship herself would also have a very heavy arrangement of rapid-firing and machine guns, with which she would co-operate with her torpedo boats. The great point to be noted is the economy, for merchant vessels could be used as battle ships in time of war and then again used as merchant vessels. Armored ships are very expensive and are of no use as merchant ships.

The Land of Ice and Snow.

The recent expeditions of Peary and Nansen to the land north of the Arctic circle has given a new interest to polar discovery. During three hundred years many men have shown wonderful heroism in polar discovery and many of their names mark the lands on which their feet first trod; but there is a region around the pole that has yet been untraversed. The intense cold and the vast quantities of ice have always driven the hardy explorers back. We take from the *Golden Rule* the map here presented, showing how near the pole men have gone, and give a condensa-

Ayer's PILLS

Received

Highest Awards

AT THE

World's Fair

AS

THE BEST Family PHYSIC

AYER'S PRIZE MEDAL AT WORLD'S FAIR PILLS

AYER'S PRIZE MEDAL AT WORLD'S FAIR PILLS

WARWICK

The great question is not what you pay for a bicycle, but what the bicycle pays you in return for the expenditure. From this standpoint the **Warwick** is the most economical wheel made.

BICYCLES

The **Warwick** gives the greatest amount of pleasure with the least expenditure of strength; it is the lightest and most rigid; it is an easy runner, consequently a fast roadster. It is built for riders, and is the fulfilment of their wants. **Warwicks** are made to last; they are guaranteed accordingly.

ARE THE

The 1894 **Warwick** 25 lb. Road Wheel is a luxurious creation. Strong and light, rigid, handsome; fully guaranteed. Made for hard work and fast riding. Every scorcher wants it *when once he sees it*. It embodies his ideas. See it! You'll become a Warwick enthusiast.

LEADERS

The minutest essentials of **Warwick** construction are brought in subjection to quality. Quality first, last, and all the time. Cost is an after consideration. When you buy a Warwick you pay for quality, not a high sounding name. Standard price, $125.

Points Pertinent to Bicycles, sent free.

WARWICK CYCLE MFG. CO.,

SPRINGFIELD MASS.

DRY GOODS.

Cotton Dress Fabrics.

Our Stock of Cotton Dress Goods is exceedingly handsome, and includes the choicest Novelties for Spring and Summer, in the newest designs; French Organdies, Plumetis, Batistes, Sateens, India Dimities, Scotch Zephrs, Piques, Linen Lawns, Dress Linens, Duck Suitings, Madras and Cheviot Shirtings.

James McCreery & Co.,

BROADWAY & 11th STREET,

NEW YORK.

TEACHERS' AIDS. What book can give you most help in Geography, Methods in Arithmetic, History of Education, etc, end 6 cents. E. L. KELLOGG & CO., 61 East nith Street, New York.

READERS will confer a favor by mentioning THE SCHOOL JOURNAL when communicating with advertisers.

tion of the article in that paper by Amos R. Wells.

Between the islands of Spitzbergen and Nova Zembla is a sea whose name immortalizes Barents, the Dutchman who visited it in 1596. Next came Henry Hudson who gave his name to Hudson strait, bay, and river. William Baffin, an Englishman, sailed on the bay that bears his name in 1616. Smith Sound was named after the man who sent Baffin on his journey, Sir Thomas Smith. In 1778 the famous Captain James Cook was commissioned to find a northwest passage from Europe to China and India. He attempted the journey through Bering strait; it had formerly been attempted by way of Baffin's bay. He reached 70° 41′ N. in 1778 (see the map), discovering America's western extremity, Cape Prince of Wales, and sailing as far along the Asiatic coast as Cape North. It was on this voyage that the brave sailor was slain by the savages of Hawaii.

Scoresby in 1806 reached a latitude of 81° 12′ 42″ N., and in 1822 pierced the ice-mailed eastern coast of Greenland in latitude 75°, and surveyed the coast south for four hundred miles. The Parry islands were discovered by a man of that name who reached a latitude of 80° 45′. Another name on the map is that of Baron Wrangell, who, in 1820-23, made four journeys, in dog-sledges, along the northeastern coast of Siberia, thus completing the survey of the Siberian coast-line.

Sir John Franklin and party in 1846 perished on the shores of King William island. Previously he had encountered in a crooked channel south of Bathurst island, the great mass of ice known as the Palæocrystic sea. McClure was the first to accomplish the northwest passage, for which feat he was knighted. In 1853 Dr. Kane entered Smith sound, discovering, on the southwest coast of Greenland, the great Humboldt glacier. In 1860 Dr. Hayes, of Boston, followed up Dr. Kane's route, and still further explored Smith sound. Charles Hall, of Cincinnati, in charge of the *Polaris*, ventured 250 miles up the channel which leads north from Smith sound, reaching, before the ice checked him, the remarkable latitude of 82° 16′ N. Hall died in winter quarters and his crew suffered many perils on their return, part of them drifting on the ice for 2,000 miles.

Very near the pole on the map the name of Markham appears. In command of the *Alert* he sailed up Smith sound, left the boat, and, with Lieutenant Parr, fought his way, amid terrific difficulties, to the unexampled latitude of 83° 20′ 26″ N. Scurvy added much to the terrors of his journey, and wonderful heroism was displayed by officers and men. The results were the discovery of three hundred miles of new coast-line and an immense mass

of valuable scientific information. Nordenskjöld started out with the *Vega* in 1878 to make the northeast passage, the northwest passage having already been achieved. He sailed along the northern coasts of Europe and Siberia. At one period of his course he was imprisoned by the ice for 294 days. He completed in triumph, however, his journey to Bering strait, with no loss of life and no damage to ship, thus safely accomplishing what was first attempted 326 years before his time. Lieutenant Schwatka, who started in 1879, traveled largely by land, getting food by hunting reindeer. He went in search of further light on the Franklin expedition, and thoroughly explored King William island. His return journey was a wonderful one, being accomplished largely by land, and in the fearful arctic winter. The cold was often seventy degrees below zero. The most famous recent expedition is that on the *Jeannette*, whose commander, De Long, perished on the banks of the delta of the Lena in Siberia. The route of the expedition is traced on the map.

RIVERSIDE LITERATURE SERIES

Latest Issues, Nos. 60 and 61.

The Sir Roger de Coverley Papers,

Selected from The Spectator, and edited with an Introduction, Chronological Table of the Lives of Addison and Steele; a Photographic Reproduction of a page of The Spectator; and Notes especially prepared for this edition. Price, each part in paper covers, 15 cents; bound together in one volume, 16mo, linen covers, 40 cents, *net*.

A NEW COMBINATION.

Longfellow-Whittier-Lowell.

Longfellow's **Evangeline** (*Riverside Literature Series, No. 1*); Whittier's **Snow-Bound, Among the Hills, and Songs of Labor** (*Riverside Literature Series, No. 4*); Lowell's **Vision of Sir Launfal, and Other Pieces** (*Riverside Literature Series, No. 30*). Price, in one volume, 16mo, linen covers, 50 cents, *net*.

A descriptive circular, giving the Table of Contents of each of the seventy three numbers of the Riverside Literature Series, will be sent to any address on application.

Houghton, Mifflin & Company are the only authorized publishers of the works of **Longfellow, Whittier, Lowell, Holmes, Emerson,** and **Hawthorne.** All editions which lack the imprint or authorization of Houghton, Mifflin & Company are issued without the consent and contrary to the wishes of the authors or their heirs.

HOUGHTON, MIFFLIN & CO.,

4 Park Street, BOSTON. **11 East 17th Street, NEW YORK.**

28 Lakeside Building, CHICAGO.

MUSICAL LITERATURE.

"Science and Art of Music,"

By Robert Challoner. A forcible work arranged in the interrogatory style. There are marginal notes, making the work ***unusually valuable as a reference book.*** 305 pages. **$1.50.**

"RITTER'S HISTORY OF MUSIC"

Skilfully condensed. Very thorough. 2 vols., cloth, each **$1.25.**

"Ritter's Students' History of Music."

A comprehensive study of music from the Christian era to the present time. Cloth, **$2.50.**

"Young People's Illustrated History of Music."

A brief statement of historical facts; enhanced with short biographical sketches and portraits of famous musicians. A handsome gift book. **$1.00.**

"Birthday Book of Musicians and Composers."

A handsome birthday register, containing the names of eminent musicians who were born and those who died on the day named. Cloth. **$1.00.**

"STRAY NOTES FROM FAMOUS MUSICIANS."

A book of quotations expressing the richest thoughts of the world's musical masters. **25c.**

Any book mailed postpaid on receipt of price.

Oliver Ditson Company,

453-463 Washington St., Boston.

C. H. DITSON & CO., N. Y. J. E. DITSON & CO., Phila.

THE LIVING METHOD FOR LEARNING

How to Think in French.

Teachers' price, 80 cts.; postage 6 cts.

By C. F. KROEH, A.M., Professor of Languages in the Stevens Institute of Technology, Hoboken, N.J.

The most successful means yet devised for learning and teaching how to speak French.

"I am sure the book will accomplish precisely what is set to be its purpose."—**Prof. James W. Bright,** Johns Hopkins University.

"You have done a great and beautiful work in the publication of your manuals."—**Bishop John H. Vincent,** Chancellor of Chautauqua.

How to Think in German.

Teachers' price, $1.20; postage, 8 cts.

"As a practical book to aid in quickly acquiring the power of correct and fluent speaking of the German language, this work has no equal."—**Scientific American,** Nov. 11, 1893, p. 316.

How to Think in Spanish.

Teachers' price, $1.20; postage, 9 cts.

C. F. KROEH, Publisher, Stevens Institute of Technology, Hoboken, N. J.

Notable Books for Supplementary Reading and School Libraries.

Mrs. Bolton's "Famous" Books. 11 vols. Illustrated. 12mo, $1.50 per vol. Poor Boys who became famous, Girls who became famous. "Famous American Authors," etc. By SARAH K. BOLTON.

"Specially adapted for the rapidly growing reading circles of our country."—*Journal of Education.*

Mrs. Farmer's "Famous Rulers" and "Famous Queens." By Mrs. LYDIA HOYT FARMER. 12mo. illustrated. $1.50 per vol.

"Of much historical value and positive interest."—*Cong.*

De Amicis's "Cuore." An Italian School-boy's Journal. By EDMONDO DE AMICIS. From the 39th Italian edition. 12mo, $1.25.

"Deserves a place beside Tom Bailey and Tom Brown."—*Commercial Bulletin.*

Jed: A Boy's Adventures in the Army of '61. By WARREN LEE GOSS, author of "Recollections of a Private." $1.50.

Tenth thousand now ready. The best war story for boys ever written.

Little Arthur's History of England, Little Arthur's History of France, and **Little Arthur's History of Rome,** giving in concise and easy language all the essential facts of English, French, and Roman History. 12mo Illustrated. $1.25 per volume.

The Astor Library of Standard Literature. Comprising the most popular works of Dickens, Scott, Cooper, Irving, Ruskin, Carlyle, etc. 229 vols. 12mo, half russia binding, 75 cents. per vol.

The Rollo Books. By JACOB ABBOTT. 14 vols. in 7. 16mo. Illustrated. $8.75.

Standard Poets. Browning, Bryant, Burns, Scott, Chaucer, Milton, Spenser, Shakespeare, Wordsworth, etc. 108 vols., 12mo, half russia binding, 75 cents per vol.

Short Studies in Botany. By Mrs. HARRIET C. COOPER. Fully illustrated. 12mo. $1.00.

A practical demonstration that Botany may be made attractive to very young children.

T. Y. CROWELL & CO., 46 EAST 14th STREET, NEW YORK. 100 PURCHASE STREET, BOSTON.

Charles De Silver & Sons, No. (G) 1102 Walnut St., Philadelphia.

Publishers of Hamilton, Locke & Clark's "INTERLINEAR CLASSICS"

"We do amiss to spend seven or eight years merely scraping together so much miserable Latin and Greek as might be learned otherwise easily and delightfully in one year."—MILTON.

Virgil, Cæsar, Horace, Cicero, Sallust, Ovid, Juvenal, Livy, Homer's Iliad, Gospel of St. John, and Xenophon's Anabasis, each to teachers for examination, $1.60.

Clark's Practical and *Progressive Latin Grammar;* adapted to the Interlinear Series of classics, and to all other systems. Price to teachers for examination, $1.00.

Sargent's Standard Speakers, Frost's American Speaker, Pinnock's School Histories, Lord's School Histories, Manesca's French Series, etc.

☞ *Sample pages of* our *Interlinears free.* Send for terms and new catalogue of all our publications.

READERS will confer a favor by mentioning THE JOURNAL when communicating with advertisers.

School of Pedagogy

—OF THE—

University of the City of New York.

Henry M. MacCracke, D.D., LL.D.,

CHANCELLOR.

Professional Training for Teachers.

Five Courses.—I. History of Education. II. Psychology and Ethics. III. Theory and Art of Teaching. IV. Educational Literature and Criticism. V. Educational Systems. Degrees Granted, Doctor of Pedagogy and Master of Pedagogy.

Year from Oct. to May. Scholarships.

Only resident students are enrolled. Send for catalogue giving full information. Address,

SECRETARY, FACULTY OF PEDAGOGY, UNIVERSITY, Washington Square, N. Y. City.

SHORTHAND FREE.

Public and private schools teaching or contemplating the teaching of shorthand, should examine

Progressive Lessons in the Pitman System of Phonography.

By N. P. HEFFLEY, of the faculty of Pratt Institute. Printed in regular book form and in separate lesson sheets. In use at Pratt Institute, Brooklyn; Drexel Institute, Philadelphia; and all leading schools and colleges. By mentioning this periodical and your school we will send a copy, free, for examination.

L. H. BIGLOW & COMP'Y, 62 Broad St., NEW YORK.

Take Lessons by mail and prepare for teaching.

SHORTHAND.

THE PUBLIC DAY SCHOOLS of N. Y. City. have *exclusively adopted*

The ISAAC PITMAN SYSTEM.

Send for 32 pp. pamphlet and specimen pages to

ISAAC PITMAN & SONS, 33 Union Square, New York.

Take Lessons at Metropolitan School of Shorthand **93 Fifth Avenue, Cor. 17th St.**

Terms Moderate. Circulars free

SHORTHAND and **Spanish** taught by Mail. **W. G. CHAFFEE, Oswego, N. Y.**

McGURRIN'S METHOD TYPE WRITING. A full treatise on the art of Type Writing. A complete system of instruction. Sent postpaid on receipt of $1. IHLING BROS. & EVERARD, KALAMAZOO, MICH.

Do you teach "Current Events" in your school? If so no paper will help you like OUR TIMES. Send for a copy and raise clubs at our low club rates. Address publishers of this paper.

ARBOR DAY IS COMING.

HERE ARE SOME HELPS YOU WILL WANT.

Exercises for Arbor Day.

By ANNIE I. WILLIS. Paper, 64 pages. Price, 25 cents.

In addition to the exercises this little book contains valuable suggestions on what trees to plant and how to plant them; a list of appropriate selections from popular authors, and suggestions for essays.

Native Trees. A Study for Home and School.

By L. W. RUSSELL, Providence, R. I. Second Edition. Revised and Enlarged, Illustrated. Price, 30 cents.

The author has written about trees as he has seen them, in walks and rambles in town and country. It is wholly unlike anything that has ever before been published on the subject.

THE SCHOOL JOURNAL, New York City: "For the general reader the scientific descriptions of trees in Botanies are too technical and contain too many hard names. The beginner needs something more simple. Mr. Russell has endeaved to furnish it. In encouraging pupils to observe and study trees, teachers will unquestionably find this little book of great assistance."

Dick's Festival Reciter.

Containing elaborate Exercises, Programs, Prize Songs, and Marches for Arbor Day, Memorial Day, &c.

Paper Binding. Price, 30 Cents.

Arbor Day Stencils

Sold only in Sets, 25 cts.

California Giant.
Charter Oak.
Washington Elm.
God Bless Our Trees.

Plant Charts.

10 cts. each. Size, 24x36 in.

1. Types of Roots.
2. Margins, Bases, Shapes of Leaves.
3. Types of Corollas.
4. Type of Crowfood Family.
5. " " Mustard "
6. " " Rose "
7. " " Composite "
8. " " Mint "
9. " " Lily "
10. " " Pulse "

These charts, from 4 to 10, each show flowers, stalk, leaves, and parts of flowers enlarged.

Address,

NEW ENGLAND PUBLISHING COMPANY, 3 Somerset St., Boston.

MUSICAL INSTRUMENTS.

We have always maintained that our instruments were the finest made. In fact they are universally conceded superior to all others. The committee on World's Fair Awards easily recognized the truth of our claims. The following is the official copy of their award on our famous

BAY STATE } GUITARS, BANJOS, AND MANDOLINS,

"Hub" Guitars and Mandolins,

Haynes' "Excelsior" and "Tilton" Guitars.

WORLD'S FAIR AWARD

"For a magnificent display of a great variety of stringed instruments, illustrating in the highest degree progress in the art. Conscientious care is shown in the selection of the materials, in the employment of skilled workmen, and indeed, in every detail of manufacture, as is evidenced by the long and successful career of the firm.

These instruments are characterized by the following specific points of excellence, viz:—

First: For volume, richness and purity of tone, combined with maximum carrying power;

Second: For correctness and beauty of form;

Third: For artistic merit in ornamentation;

Fourth: For perfection of scale; and

Fifth: For superiority of materials, workmanship and finish. (Signed)

EDWIN P. CARPENTER, Individual Judge."

This testimony coming from disinterested parties confirms the wisdom of the great musical public in choosing our instruments before all others.

Send for catalogues.

JOHN C. HAYNES & CO.,

453 to 463 Washington St., & 33 Court St.

BOSTON, MASS.

The School Poetry Book.

Little Blue Ribbons, *Dobson;* The Land of Counterpane, *Stevenson;* The White-Footed Deer, *Bryant;* The Rose upon my Balcony, *Thackeray;* The Fountain, *Lowell;* The Brook, *Tennyson;* The Wreck of the Hesperus, *Longfellow;* Lucy Gray, *Wordsworth;* A Farewell, *Kingsley;* The Mountain and the Squirrel, *Emerson;* A Visit from the Sea, *Stevenson;* Lochinvar, *Scott;* The Battle of Blenheim, *Southey;* The Hunters, *Arnold;* Summer Moon, *Buchanan;* My Landlady, *Dobson;* The Song of Marion's Men, *Bryant;* Warren's Address at the Battle of Bunker Hill, *Pierpont;* The Liberty Bell, *Author Unknown;* Patriotism, *Scott;* Old Ironsides, *Holmes;* My Native Land—Good Night, *Byron;* The Charge of the Light Brigade, *Tennyson;* How Sleep the Brave, *Collins;* Hohenlinden, *Campbell;* The Burial of Sir John Moore, *Wolfe;* Pocahontas, *Thackeray;* Before Sedan, *Dobson;* Soldier, Rest, *Scott;* The Village Blacksmith, *Longfellow;* The Kitten and the Falling Leaves, *Wordsworth;* The Poet's Cat, *Cowper;* The Toad's Journal, *Taylor;* I Remember, I Remember, *Hood;* The Lights of London Town, *Sims;* As Slow our Ship, *Moore;* The Ancient Mariner, *Coleridge;* Charity, *Ruskin;* The Yellow Violet, *Bryant;* The Daisy, *Montgomery;* Daffodils, *Wordsworth;* The Death of the Flowers, *Bryant;* Scene after a Summer Shower, *Norton;* The Grasshopper and the Cricket, *Keats;* Lay of the Imprisoned Huntsman, *Scott;* The Bison Track, *Taylor;* The Destruction of Sennacherib, *Byron;* Lord Ullin's Daughter, *Campbell;* The Three Fishers, *Kingsley;* The Loss of the Royal George, *Cowper;* The Inchcape Rock, *Southey;* The Pirates' Island, *Dana;* To a Waterfowl, *Bryant;* County Guy, *Scott;* The Old Sword, *Tennyson;* How they brought the Good News from Ghent to Aix, *Browning;* Riding Together, *Morris;* The White Ship, *Rossetti;* The Banks o' Doon, *Burns;* Bannockburn, *Burns;* Edinburgh after Flodden, *Aytoun;* Horatius at the Bridge, *Macaulay;* The Expedition of Nadir Shah into Hindostan, *Tennyson;* The Noble Nature, *Jonson;* The Deserted Village, *Goldsmith;* Abou Ben Adhem, *Hunt;* The Chariot of the Fairy Queen, *Shakespeare;* The Pied Piper of Hamelin, *Browning;* The Raven, *Poe;* Tampa Robins, *Lanier;* Elegy Written in a Country Churchyard, *Gray;* The Spacious Firmament on High, *Addison;* Dirge from Cymbeline, *Shakespeare.*

CLOTH, BY MAIL, 40 CENTS.

A Graded List of 3500 Common Words Difficult to Spell, by mail, **24c.**

Prose Dictation Exercises from the English Classics, by mail, **30c.**

JAMES H. PENNIMAN, 4322 Sansom St., Philadelphia, Pa.

All orders for specimen copies should be accompanied by the mailing price, which will be refunded if the book is returned in good condition within two weeks.

General Notes.

St. Nicholas is to add another serial to its attractions for the present year, which have included Mark Twain's "Tom Sawyer Abroad" and Rudyard Kipling's stories of the jungle. It is announced that the April number will contain the first chapters of a serial written and illustrated by Howard Pyle, the author of "Robin Hood" and "Men of Iron." It is called "Jack Ballister's Fortunes," and deals with life in America during the early colonial days.

The granddaughter of Nathaniel Hawthorne and daughter of Julian Hawthorne, Hildegrade Hawthorne, who won the *Current Literature* prize for the best short account of the World's fair, will publish next month in Philadelphia a book with the title *The Fairest of the Fair*, being an account of her experience during her stay in Chicago.

The series of arithmetics prepared by John T. Prince, Ph. D., agent of the Massachusetts board of education, consists of a manual for teachers and eight small books for pupils, arranged somewhat on the lines of classification in city graded schools. While the books are patterned largely after arithmetics in common use in Germany, they are designed to meet the needs of American schools and to embody the best features of American books. The special features of the series are: 1. Separation of teachers' and pupils' books whereby the pupils may not depend upon printed rules and directions. 2. Careful gradation of problems upon an inductive plan. 3. Frequent reviews. 4. Large amount of oral or mental work. 5. Great number and variety of problems, by which teachers will be relieved of the necessity of giving extra work. 6. Practicalness of problems. 7. Introduction of statistics and other useful facts. 8. Use of drill tables and other devices intended to save the time of teachers. 9. Detailed directions in methods of teaching and drilling given in the Teachers' Manual. Ginn & Co., Boston, are the publishers.

When Byron was in college he was a great reader, though an indifferent student. In like manner most young persons prefer interesting reading to the drudgery of study of the text-book. Educators should take the hint and provide plenty of supplementary reading and a good school library. Some excellent books for the school are, Mrs. Bolton's "Famous" Books, Mrs. Farmer's "Famous Rulers" and "Famous Queens," De Amicis' "Cuore," Jed: A Boy's Adventure in the Army of '61, Little Arthur's History of England, Little Arthur's History of France, and Little Arthur's History of Rome, The Astor Library of Standard Literature, The Rollo Books, Standard Poets, and Short Studies in Botany, published by T. Y. Crowell & Co., New York and Boston.

If there is any person in the world who needs recreation to drive away care and afford relief for tired nerves it is the teacher. The question is, How shall he obtain it? Carriage riding is good, but it is not active enough. Bicycle riding is better because it requires moderate exertion. Try it and see how pleased you will be. Send to the Overman Wheel Co. for a catalogue of the Victor bicycles. All experienced wheelmen know of their high quality.

During the Teething Period.

MRS. WINSLOW'S SOOTHING SYRUP has been used for over FIFTY YEARS by MILLIONS of MOTHERS for their CHILDREN WHILE TEETHING, with PERFECT SUCCESS. It SOOTHES the CHILD, SOFTENS the GUMS, ALLAYS all PAIN; CURES WIND COLIC, and is the best remedy for DIARRHŒA. Sold by Druggists, in every part of the world. Be sure and ask for "Mrs. Winslow's Soothing Syrup," and take no other kind. Twenty-five cents a bottle.

The Tubing Used in Columbia Bicycles

and the structure of a fine bicycle is chiefly tubular,—is of the finest steel, cold drawn and seamless. The cold drawing process insures the greatest amount of toughness and stability, and, although the process by which we make our own special tubing is expensive, no question of expense is ever allowed to enter into the construction of a Columbia.

POPE MFG. CO., Boston, New York, Chicago, Hartford.

Our descriptive catalogue for 1894 will interest every contemplating purchaser of a bicycle. Free at Columbia agencies, or mailed for two two-cent stamps.

AGENTS WANTED.

A BETTER POSITION AND BETTER PAY can be had by securing an agency for the introduction of Potter's new series of School Books.

School Officers and Teachers:

WAIT for our new Geographies, Arithmetics, Readers, Copy Books, Histories, Spelling Books. Everything new.

Radically different from all others. Nothing can stem the tide of their popularity.

THOUSANDS OF SCHOOLS are already using Potter's Geographies. The other books will be ready soon.

Exclusive territory. Salary or commission.

JOHN E. POTTER & CO.

PHILADELPHIA, BOSTON, NEW YORK, CHICAGO, MINNEAPOLIS.

OUR SYSTEM THE BEST

We want reliable women in every town to sell $6.00 worth of Teas, Spices and Baking Powder for us, and get a set of Silver Knives and Forks free, or $12.00 worth, and get a set of China Dishes free. No money required until you deliver goods and get premium.

W. L. THOMAS, 48-50 E. 3d St., Cincinnati, O.

AGENTS $10 a day at home selling LIGHTNING PLATER and plating Jewelry, Watches, Tableware, Bicycles, etc. Plates finest jewelry good as new, and on all kinds of metal with gold, silver or nickel. No experience. Anyone can plate the first effort. Goods need plating at every house. Outfits complete. Different sizes, all warranted. Wholesale to agents $5 up. Big profits, good seller. Circulars free.

H. F. Delno & Co. Dept. No. 6, Columbus, O.

Beeman's Pepsin Gum.

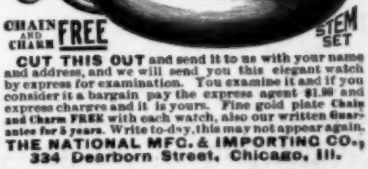
CAUTION.—See that the name **Beeman** is on each wrapper.

The Perfection of Chewing Gum and a Delicious Remedy for Indigestion. Each tablet contains one grain Beeman's pure pepsin. Send **5 cents** for sample package.

THE BEEMAN CHEMICAL CO.

72 Lake St., Cleveland, O.

Originators of Pepsin Chewing Gum.



CUT THIS OUT and send it to us with your name and address, and we will send you this elegant watch by express for examination. You examine it and if you consider it a bargain pay the express agent $1.98 and express charges and it is yours. Fine gold plate Chain and Charm FREE with each watch, also our written Guarantee for 5 years. Write to-day, this may not appear again.

THE NATIONAL MFG. & IMPORTING CO., 334 Dearborn Street, Chicago, Ill.

The March number of the *Political Science Quarterly* opens with "Some Ideas on Constitutional Revision," by J. B. Uhle, of the New York Bar; Mr. A. D. Noyes, financial editor of the *Evening Post*, presents a critical study of "The Banks and the Panic of 1893;" Prof. John Dewey, of Michigan university, examines anew "Austin's Theory of Sovereignty;" Mr. C. M. Platt contrasts and compares "Positive Law and Other Laws;" Mr. Edward Porritt, the veteran English journalist, describes the earlier and the current phases of "The Revolt against Feudalism in England;" Mr. G. H. Blunden, the British expert, contributes the first instalment of an elaborate study of "British Local Finance;" and Prof. W. G. Ashley, of Harvard, sums up the latest knowledge as to "The Village in India."

The close of the school year is again approaching, when crowds of pupils will be made happy with diplomas. Teachers naturally wish to give something that is handsome and artistic. C. L. Ricketts, Opera House building, Chicago, has diplomas in stock to suit any school, or, if desired, he will engrave them to order.

The question that confronts many young people is, How shall I begin the study of shorthand? A satisfactory answer can be obtained by addressing L. H. Biglow & Co., 62 Broad street, New York, who issue Progressive Lessons in the Pitman System of Phonography, by N. P. Heffley, of the faculty of Pratt institute. It is printed in regular book form and in separate lesson sheets. In use at Pratt institute, Brooklyn; Drexel institute, Philadelphia, etc. By mentioning THE JOURNAL and your school they will send a copy, free, for examination.

The continued popularity of Marion Crawford's Roman stories, *Saracinesca*, *Sant' Ilario, and Don Orsino*, has led his publishers, Macmillan & Co., to undertake a cheap paper edition of the first of the series, *Saracinesca*, limited to 100,000 copies.

It is significant of the interest which George William Curtis felt in Civil Service Reform, as well as of the influence which he exerted, that the second volume of his *Orations and Addresses* (Harpers) should be devoted wholly to his addresses and reports on this subject. Mr. Curtis's undisputed position, moreover, as the leader of this reform since it was started, gives a special significance to his words.

Ex-Minister Rasmus B. Anderson, so widely known among the Scandinavians at home and abroad, has written for the April *Scribner* a picturesque account of a winter journey up the coast of Norway, fully illustrated.

Beecham's pills are for biliousness, bilious headache, dyspepsia, heartburn, torpid liver, dizziness, sick headache, bad taste in the mouth, coated tongue, loss of appetite, sallow skin, when caused by constipation; and constipation is the most frequent cause of all of them.

Book free; pills 25c. At drugstores, or write B.F. Allen Co., 365 Canal St., New York.

In THE JOURNAL some weeks ago was an able article on vertical penmanship that expressed the view entertained for this system by a well-known English educator. The system is recommended by many of the leading educators on this side of the Atlantic. They hold that it is the most easily taught, quickly acquired, and rapidly written of any style. For samples of this bold and beautiful hand send twenty-five cents in stamps to William Beverley Harison, 59 Fifth avenue, N. Y.

"I enjoy the work here very much, and feel more than paid for joining your agency. I knew that the agency is a benefit to teachers and schools." Thus writes Prin. Oscar F. Coburn, of Kinderhook, N. Y., to manager Harlan P. French, of the Albany Teachers' Agency, Albany, N. Y. It is only one out of many testimonials of the good work done by this agency.

It is a good thing to know how to plate metal; there is money in it. By writing to H. F. Delno & Co., Dept. 6, Columbus, O., information may be obtained of the Lightning Plater, by which are plated jewelry, watches, tableware, bicycles, etc. A complete outfit is furnished.

Nothing delights the eye of the thrifty housewife so much as a well-stocked china closet. The ladies should note the fact that they can get some of the most beautiful pieces of china and at the same time high grade teas of the Great American Tea Co., 31 Vesey street, N. Y. The price of the tea alone is less than is often paid for a miserable quality of the herb to local dealers, while the china is a gift Many other household articles, such as clocks, watch clocks, chenille table covers, cups and saucers, plates, knives, etc., are also given.

Teachers' Co-Operative Agency.
SAN ANTONIO, TEXAS.

Wanted immediately two teachers, lady or gentleman. One for business college in Texas, the other private school in Arkansas. Common branches. Apply to us immediately. Box 407.

In making the award to the musical instruments of John C. Haynes & Co., Boston, Edwin P. Carpenter, the World's fair (Chicago, 1893) judge noted the following points; volume, richness, and purity of tone, combined with maximum carrying power; correctness and beauty of form; artistic merit in ornamentation; perfection of scale; and superiority of material, workmanship, and finish. Among the instruments were included guitars, banjos, and mandolins. Send for catalogues fully describing them.

The death of Mr. George W. Childs has revealed once more the strong hold he had upon the affections of men and women in his own profession. *Harper's Weekly* for February 10 contained a striking tribute to his many manly virtues, by Talcott Williams, of the Philadelphia *Press*; and the *Weekly* for the 17th will print a page of illustrations showing Mr. Childs as he appeared in his office at the *Public Ledger* building, and scenes at the funeral.

Bret Harte's stories are so familiar to the public that it is scarcely necessary to say more of his new volume, *A Protégée of Jack Hamlin's and Other Stories*, (Houghton, Mifflin & Co.), than that these tales are in the old delightful manner, which throws a halo of romance and uncommon attractiveness around the California types that he delights to picture.

A Perfect Cure

Mr. Joel H. Austin is a man very highly esteemed by all who know him. He is now pension attorney at Goshen, Ind., and was for 20 years a Baptist missionary minister. He says: "I suffered years with swelling of my limbs, at times very painful, especially at night. I could not sleep. I have taken six bottles of Hood's Sarsaparilla, and for weeks there has not been any swelling of my feet and limbs. I have also suffered for years with catarrh in the head, which was working down into my lungs. Since trying Hood's Sarsaparilla the pain in my head has stopped and I am positive of a perfect cure." Get Hood's.

Hood's Sarsaparilla Cures

Hood's Pills act easily, yet promptly and effectively, on the liver and bowels. 25c.

Holes

in your lungs are the Homes of Consumption Germs. The diseased spots are wiped out with new tissue made by

Scott's Emulsion

the Cream of Cod-liver Oil, and hypophosphites. This acts immediately upon the Lungs and makes new tissue there. *Physicians*, the world over, endorse it.

Don't be deceived by Substitutes!

Prepared by Scott & Bowne, N. Y. All Druggists.

BOVININE

Is absorbed into the circulation almost instantly. Beef teas and broths contain no nourishment whatever.

DEAFNESS & HEAD NOISES CURED by Peck's Invisible Tubular Ear Cushions. Whisper heard. Successful when all remedies fail. Sold only by F. Hiscox, 853 B'way, N.Y. Write for book of proofs FREE

KIDDER'S PASTILLES. Sure relief Price 35 cts by mail. Stowell & Co. Charlestown, Mass. ASTHMA.

MY WIFE CANNOT SEE HOW YOU DO IT AND PAY FREIGHT.

$10.50 Buys the Oxford Improved SINGER Sewing Machine, with a complete set of attachments and guaranteed for 10 years. Shipped anywhere on 30 days' trial. No money required in advance. 75,000 now in use. World's Fair Medal awarded. Buy from factory, save dealers' and agents' profit. Write to-day for our LARGE FREE CATALOGUE. Oxford Mfg. Co., 342 Wabash Ave., Chicago, Ill.

READERS will confer a favor by mentioning THE SCHOOL JOURNAL when communicating with advertisers.

The Baker & Taylor Co. who have been for a number of years at 740 Broadway have removed to the handsome and commodious building at 5 and 7 East 16th St., near Fifth Ave. where with three large floors they will be able to take care of their immense trade. Their business has been remarkably successful, and though the old place was large, it was not large enough. They handle all kinds of miscellaneous books and school-books. Libraries are a speciality. They will be glad to make a list of books suitable for a school library and with their facilities the price is sure to be reasonable.

D. C. Heath & Co., have now in a press a *Laboratory Course in Physiological Psychology*, by Dr. E. C. Sanford of Clark university. All those that have attempted to make of the teaching of the "new psychology" something more than a new kind of text-book work have had painful occasion to learn the need of such a course. So pressing has the call become for some sort of book for immediate use in several important institutions that the publishers have consented to bring out a limited edition of the first six chapters of the work at once. These chapters cover the dermal senses, the static and kinaesthetic senses, taste and smell, hearing, vision in general, and sensations of light and color. Chapters to follow treat of the seeing of space, direction and motion, Weber's law, reflex action and reaction times, association, memory, attention, voluntary motion, etc.

In the Track of the Sun: Readings from the Diary of a Globe Trotter (Appleton) a volume of convenient size, magnificently illustrated with drawings by Mr. Harry Fenn, and reproductions of photographs, describes in an easy, entertaining, intelligent manner the tour of the world. Starting from New York, the author, Mr. Frederick Diodati Thompson, crosses the continent, sails from Vancouver to Japan, where he spends some time in studying noteworthy features of that delightful country, and then visits China, Singapore, Ceylon, and other less prominent places, reserving a considerable portion of his time for India and Egypt, where he does most extensive sight-seeing, and afterward traversing Italy and France and returning to New York by way of London and Liverpool.

The Cheapest is Pond's Extract, because one "Small" bottle, 50 cts., has more beneficial effect than one gallon of other preparations sold as being the "same as" or "equal to," *Pond's Extract*. For all Pain and Soreness.

Benefits Forgot, the striking novel of American life, by Wolcott Balestier, which has attracted so much attention during its publication in the *Century Magazine*, is to be published immediately by D. Appleton & Co.

Reason? BEECHAM'S PILLS act like magic.

Charles Scribner's Sons will soon bring out another volume of travel by Dr. Charles A. Stoddard. It will describe a trip to California, under the title "Beyond the Rockies."

Mr. Howell's daughter, Miss Mildred, has drawn a headpiece for a poem which her father contributes to the April number of *Harper's Magazine*.

IMPORTANT.

When visiting New York City, save Baggage, Express and Carriage Hire, and stop at the Grand Union Hotel, opposite Grand Central Depot.

600 Handsomely Furnished Rooms at $1 and upwards per day. European plan. Elevators and all Modern Conveniences.

Restaurants supplied with the best. Horse cars, stages, and elevated railroads to all depots. You can live better for less money at the Grand Union Hotel than any other first-class hotel in the city. Ford & Co., Proprietors.

Pears'

What a luxury Pears' soap is!

The cheapest soap in all the world besides.

Free to INVALID WOMEN.

Why suffer longer, when you can receive free a diagnosis of your troubles by Dr. Wallace S. Springsteen. Send at once for symptom sheet and treatise. You cannot lose anything, therefore send now. Something entirely new in medical treatment,—successful when everything else had failed.

SPRINGSTEEN MEDICINE CO., 414 Central Ave., Cleveland, O.

A GOOD BROTH IS HALF A DINNER

EVERY ONE can afford to use Clam Bouillon for Lunch, Dinner and Tea at **20 cents** a quart. Enough for a whole family. Prepared in five minutes from a **bottle** of

BURNHAM'S CLAM BOUILLON

Quality improved, price reduced, larger bottles. All Grocers sell it.

E. S. BURNHAM CO., 120 Gansevoort St., N.Y.

Sample bottle, 10 cents; makes a pint.

The Best Is BROWN'S FRENCH DRESSING

For Ladies' and Children's

Boots & Shoes.

Paris Medal on every bottle. Sold Everywhere.

Vick's Floral Guide, 1894,

The Pioneer Catalogue of Vegetables and Flowers.

Contains 112 pages 8 x 12 1-2 inches, with descriptions that describe, not mislead; illustrations that instruct, not exaggerate.

The cover is charming in harmonious blending of water color prints in green and white, with a gold background,—a dream of beauty. 32 pages of Novelties printed in 8 different colors. All the leading novelties and the best of the old varieties. These hard times you cannot afford to run any risk. Buy **HONEST GOODS** where you will receive **FULL MEASURE.** It is not necessary to advertise that Vick's seeds grow, this is known the world over, and also that the harvest pays. A very little spent for proper seed will save grocer's and doctor's bills. Many concede Vick's Floral Guide the handsomest catalogue for 1894. If you love a fine garden send address now, with 10 cents, which may be deducted from first order. **$260 Cash Prizes for Potatoes.**

NOVELTIES.

Branching Aster, (Often sold for Chrysanthemum.)
Hibiscus, Sunset,
Dahlia, Ethel Vick,
Large Morning Glories,
Double Anemone,
Charmer Pea,
Maggie Murphy and other Potatoes.

ROCHESTER, N.Y. JAMES VICK'S SONS.

MON. TUES. WED. THUR. FRI. SAT. SUN.

SAPOLIO

USED EVERY WEEK-DAY BRINGS REST ON SUNDAY.

THE GREAT AMERICAN TEA COMPANY

LADIES HOW ARE YOUR China Closets

Are the old dishes chipped and cracked, and unsuited to setting off a spotless table-cloth? ***We will replenish it FREE.*** Why drink poor teas and coffees and ruin your health, when you can get the best at ***cargo prices?*** ***PREMIUMS*** for all. Dinner, Tea and Toilet Sets, Banquet and Hanging Lamps, Watches, Clocks, Music Boxes, Cook Books, Watch Clocks, Chenille Table Covers, Cups and Saucers, Plates, Knives and Forks, Tumblers, Goblets given to ***Club Agents.*** ***GOOD INCOMES*** made by getting orders for our celebrated Teas, Coffees, Baking Powder and Spices. Work for all. ***3 1-2 lbs. fine teas*** by mail or express for $2 00. ***Charges paid.*** Headquarters in the United States for Teas, Coffees, Baking Powder and Spices.

DO YOU LIKE GOOD TEAS AND COFFEES?

Beautiful Panel (size 14x28 inches), ***FREE*** to all Patrons. For full particulars, prices, terms and Premium lists, address

THE GREAT AMERICAN TEA CO., 31 & 33 Vesey St., New York. P. O. Box 289.

ARITHMETIC BY GRADES.

Prepared under the direction of

JOHN T. PRINCE, PH.D.,

AGENT OF THE MASSACHUSETTS BOARD OF EDUCATION AND AUTHOR OF *Courses of Studies and Methods of Teaching.*

Square 12mo. Stiff covers Introduction Price of Pupils' Books, 18 Cents each. (Teachers' Manual, Ready this Spring.)

This series consists of a Manual for teachers and eight small books for pupils, arranged somewhat on the lines of classification in city graded schools. While the books are patterned largely after arithmetics in common use in Germany, they are designed to meet the needs of American schools and to embody the best features of American books.

GINN & COMPANY,
Publishers,
BOSTON. NEW YORK. CHICAGO.

The advantages claimed for this distinctively new series of books are:

(1) Separation of teachers' and pupils' books whereby the pupils may not depend upon printed rules and directions.
(2) Careful gradation of problems upon an inductive plan.
(3) Frequent reviews.
(4) Large amount of oral or mental work.
(5) Great number and variety of problems, by which teachers will be relieved of the necessity of giving extra work.
(6) Practicalness of problems.
(7) Introduction of statistics and other useful facts.
(8) Use of drill tables and other devices intended to save the time of teachers.
(9) Detailed directions in methods of teaching and drilling given in the Teachers' Manual.

J. A. GRAVES, *Principal South School, Hartford, Conn.*—"I am greatly pleased with the idea and with the way it is worked out. We have been looking for a long time for something that would supply an abundance of graded work, both oral and written, which we could put into the hands of the children. These little books will save time and trouble to the teachers and eyesight to the children, which is a very important consideration with us."

First Lessons in Language.

Elements of Composition and Grammar.

A two-book course in Language, Composition, and Grammar, by SOUTHWORTH & GODDARD, of surpassing excellence. If you are not already acquainted with these books, you have an agreeable prospect before you in becoming so. They interest the pupils and are profitable to them. The most gratifying success attends their use.

LEACH, SHEWELL & SANBORN, New York Boston Chicago

Aids for Teaching Art and History.

The Prang Educational Company are now publishing a series of reproductions of fine photographs of famous buildings and monuments as aids for teaching Art and History.

These reproductions are about 20x28 inches in size, of the same color as the original photographs, and do not fade on exposure to light.

PRICE, ONE DOLLAR EACH.

An illustrated circular showing the subjects thus far published, will be mailed on application to

THE PRANG EDUCATIONAL COMPANY,

646 Washington Street, BOSTON. 47 East 10th Street, NEW YORK. 151 Wabash Avenue, CHICAGO.

BY NOTE—NOT BY ROTE.

This is the key to the true method of teaching music as embodied in the "NORMAL MUSIC COURSE" by JOHN W. TUFTS and H. E. HOLT.

"Pupils by this system soon learn the relation of each tone to the key-note, . . . and obtain a knowledge of tune and of time that they can never forget."—*Boston Sat. Evening Gazette.*

Send for our list of choice Musical Publications for school use.

SILVER, BURDETT & COMPANY, Publishers.
BOSTON NEW YORK CHICAGO PHILADELPHIA

PARALLEL EDITION of the CLASSICS

Consisting of the Originals and Translations arranged on opposite pages.

1. The First Four Books of Cæsar's Commenteries.
2. The First Six Books of Vergil's Aeneid.
3. Select Orations of Cicero.

Each 12mo. Cloth. By mail, $1.00.

Special Offer.—To any Teacher sending us $2.50 we will send a set of the above three books, by mail postpaid.

A. LOVELL & CO., No. 3 East 14th St., New York.

Musicians, Read!

Sunlight and Shadow A collection of high grade but not difficult songs, that have never before appeared in print. Each is a gem. By Julian Edwards. *Price, $1 Postpaid.*

Lessons in Audition A book on a new plan, to be used in private or class instruction for the development of musical language. Every intelligent musician will give this masterly work a hearty welcome. By Helene Sparmann. *Price, 50 Cents Postpaid.*

St. Caecilian Collection A collection of sacred music arranged for male voices. Will be especially acceptable in Gospel Meetings and the Y. M. C. A. By C. F. Steele. *Price, 40 Cents Postpaid.*

Anthem Crown The latest anthem collection by this celebrated church music composer. By H. P. Danks. *Price, 35 Cts. Postpaid*

Curriculum The leading Piano instruction book by an American. Unequaled in its own field. American or Foreign fingering. By Geo. F. Root. *Price, $2.75 Postpaid.*

Any of the above books will be sent to responsible parties for examination, conditional upon postage or express charges being paid by the one ordering, and that copies returned to us shall be perfectly saleable.

*** Send 10 cts. for sample copy of new **Musical Visitor**, containing music for Choirs, in addition to its general literary matter.

THE JOHN CHURCH CO.,
CINCINNATI—NEW YORK—CHICAGO

STUDY FRENCH AT YOUR HOME.

If you are a beginner, get the new method "FRENCH, with or without a MASTER." 1 vol. $1.00. If you know some French, subscribe to "Le Francais" ($2 00 per year). A French monthly magazine, containing annotated comedies, novels, sketches, &c., also exercises which are corrected free of charge. Difficulties explained. Each subscriber becomes a student, by correspondence, of the Berlitz School of Languages. (One sample copy free.)

BERLITZ & CO., MADISON SQUARE, N. Y.

UNIVERSITY PUBLISHING CO.,

Educational Publishers,

43-47 East 10th St., NEW YORK.

Please send for catalogue and price list.
Correspondence solicited.

FREE TRIP TO EUROPE. Teachers' vacation, to Europe, the seashore or Mountains, with all expenses paid. Address, JAMES D. BALL, 36 Bromfield St., Boston, Mass.

Diplomas IN STOCK TO SUIT ANY SCHOOL, OR ENGRAVED TO ORDER. SAMPLES. REF. BOARD OF EDUCATION OF CHICAGO, WHOSE WORK WE DO. C. L. RICKETTS, OPERA HOUSE BLDG, CHICAGO.